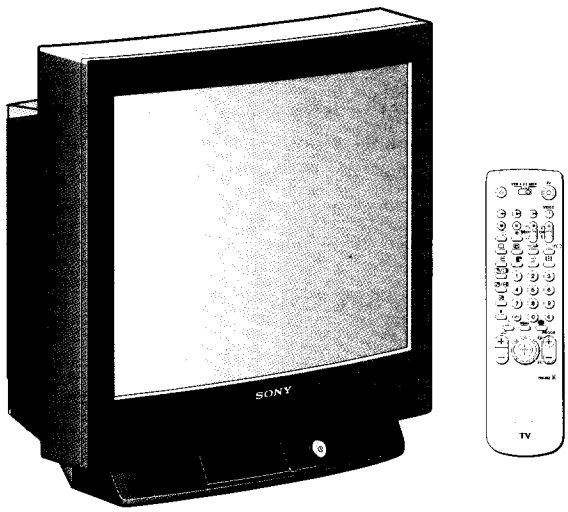
SERVICE MANUAL

BE-3D CHASSIS

MODEL	COMMANDER	DEST.	CHASSIS NO.
KV-29F1A	RM-862	Italian	SCC-K05B-A
KV-29F1B	RM-862	French	SCC-K01B-A
KV-29F1D	RM-862	AEP	SCC-K07B-A
KV-29F1E	RM-862	Spanish	SCC-K06B-A
KV-29F1K	RM-862	OIRT	SCC-K08B-A
KV-29F1R	RM-862	OIRT	SCC-K08C-A
KV-29F1U	RM-862	UK	SCC-K04B-A



MICROFILM

TRINITRON® COLOR TV

SONY®

ITEM MODEL	Television System	Channel Coverage	Colour System
Italian	B/G/H	VHF: E2-E12, S1-S20, A-H, H1,H2 UHF: E21-E69	PAL NTSC3.58/4.43 (video input only)
French	B/G/H, D/K, L, I	L SECAM VHF: F2-F10 UHF: F21-F69 TV CABLE TV (1) VHF: B-Q UHF: S21-S44 PAL B/G/H VHF: E2-E12 UHF: E21-E69 CABLE TV (1) : S1-S41 CABLE TV (2) : S01-S05, M1-M10, U1-U10 ITALIA VHF: A-H, H1, H2 PAL I UHF: B21-B69 D/K VHF: R01-R20 UHF: B21-B69	PAL, SECAM NTSC3.58/4.43 (video input only)
AEP	B/G/H, D/K	B/G/H VHF: E2-E12 UHF: S1-S20 CABLE TV (1) : S1-S41 CABLE TV (2) : S01-S05, M1-M10, U1-U10 ITALIA VHF: A-H, H1, H2 D/K VHF: R01-R20 UHF: B21-B69	PAL, SECAM NTSC3.58/4.43 (video input only)
Spanish	B/G/H, D/K	PAL B/G/H VHF: E2-E12 UHF: E21-E69 CABLE TV (1) : S1-S41 CABLE TV (2) : S01-S05, M1-M10, U1-U10 ITALIA VHF: A-H, H1, H2 D/K VHF: R01-R20 UHF: B21-B69	PAL, SECAM NTSC3.58/4.43 (video input only)
OIRT	B/G/H, D/K	B/G/H VHF: E2-E12 UHF: E21-E69 CABLE TV (1) : S1-S41 CABLE TV (2) : S01-S05, M1-M10, U1-U10 ITALIA VHF: A-H, H1, H2 D/K VHF: R01-R12 UHF: R21-R69	PAL, SECAM NTSC3.58/4.43 (video input only)
UK	I	UHF: U21-U69	PAL NTSC3.58/4.43 (video input only)

MODEL	29F1A	29F1B	29F1D	29F1E	29F1K 29F1R	29F1U
Power Consumption	88W	106W	106W	106W	106W	163W

SPECIFICATIONS

Picture Tube — Super Trinitron
Approx. 72 cm (29 inches)
(Approx. 68 cm picture measured diagonally)
110° -deflection

[FRONT]

- 3 , Video input - phono jack
- 3 , Audio inputs - phono jacks
- 3 , S video input - 4 pin DIN
- Stereo minijack - headphone jack

Rear/Front Terminals

[REAR]

- 1 21-pin Euro connector (CENELEC standard)
  - Inputs for audio / video signals
  - Inputs for RGB
  - Outputs for TV audio and video signals
- 2/ 2, 21-pin Euro connector (CENELEC standard)
  - Inputs for audio / video signals
  - Inputs for S video
  - Outputs for TV audio and video signals (selectable)

Sound output	
Left/Right	2x15W (RMS) 2x30W (music power)
Dimensions	663x617x540 mm approx.
Weight	Approx. 42.0 kg
Supplied accessories	RM-862 Remote Commander (1) Batteries R6 (2)
Other features	Fastext, NICAM

[RM-862]

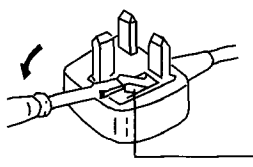
Remote control system	Infrared control
Power requirements	3V dc (2 batteries) R6 (size AA)
Dimensions	Approx. 210x56x24 mm (w/h/d)
Weight	Approx. 110g (Not including battery)

Design and specifications are subject to change without notice.

Item \ Model name	KV-29F1A	KV-29F1B	KV-29F1D	KV-29F1E	KV-29F1K KV-29F1R	KV-29F1U
PIP	OFF	OFF	OFF	OFF	OFF	OFF
MPIP	OFF	OFF	OFF	OFF	OFF	OFF
Scart 1	ON	ON	ON	ON	ON	ON
Scart 2	ON	ON	ON	ON	ON	ON
Front in (3)	ON	ON	ON	ON	ON	ON
Scart 4	OFF	OFF	OFF	OFF	OFF	OFF
AKB in 16:9 mode	ON	ON	ON	ON	ON	ON
TXT	ON	ON	ON	ON	ON	ON
FLOF	ON	ON	ON	ON	ON	ON
TOP	ON	ON	ON	ON	ON	ON
Norm B/G/H	ON	ON	ON	ON	ON	OFF
Norm I	OFF	ON	OFF	OFF	OFF	ON
Norm D/K	OFF	ON	ON	ON	ON	OFF
Norm AUS	OFF	OFF	OFF	OFF	OFF	OFF
Norm L	OFF	ON	OFF	OFF	OFF	OFF
Norm SAT	OFF	OFF	OFF	OFF	OFF	OFF
Norm M	OFF	OFF	OFF	OFF	OFF	OFF
Language Preset	Italian	French	German	Spanish	OIRT	English

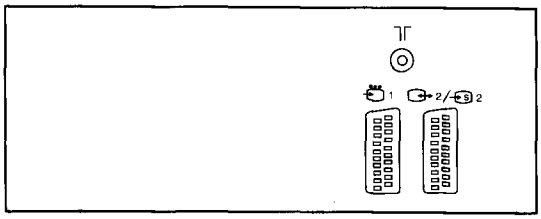
WARNING (KV-29F1U only)

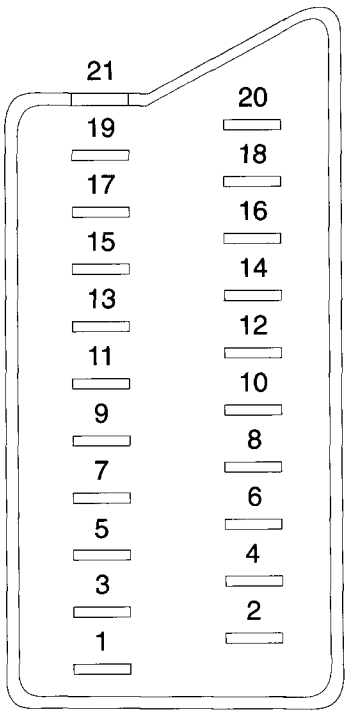
The flexible mains lead is supplied connected to a **B.S. 1363** fused plug having a fuse of **5 AMP** capacity. Should the fuse need to be replaced, use a **5 AMP FUSE** approved by **ASTA** to **BS 1362**, ie one that carries the ASTA mark.
IF THE PLUG SUPPLIED WITH THIS APPLIANCE IS NOT SUITABLE FOR YOUR SOCKET OUTLETS IN YOUR HOME.
IT SHOULD BE CUT OFF AND AN APPROPRIATE PLUG FITTED.
THE PLUG SEVERED FROM THE MAINS LEAD MUST BE DESTROYED AS A PLUG WITH BARED WIRES IS DANGEROUS IF ENGAGED IN A LIVE SOCKET OUTLET.
When an alternative type of plug is used it should be fitted with a **5 AMP FUSE**, otherwise the circuit should be protected by a **5 AMP FUSE** at the distribution board.



How to replace the fuse.
Open the fuse compartment with the screwdriver blade and replace the fuse.

21 pin connector (1, 2 / 2)

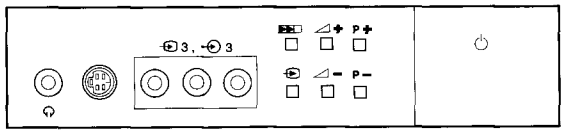




Pin No.	1	2	4	Signal	Signal Level
1	○	○	○	Audio output B (Right)	Standard level : 0.5V rms Output impedance : Less than 1k ohms*
2	○	○	○	Audio input B (Right)	Standard level : 0.5V rms Output impedance : More than 10k ohms*
3	○	○	○	Audio output A (Left)	Standard level : 0.5V rms Output impedance : Less than 1k ohm*
4	○	○	○	Ground (Audio)	
5	○	○	○	Ground (Blue)	
6	○	○	○	Audio input A (Left)	Standard level : 0.5V rms Output impedance : Less than 10k ohm*
7	○	●	●	Blue input	0.7 ± 3dB, 75 ohms, positive
8	○	○	○	Function select (AV control)	High state (9.5 - 12V) : Part mode Low state (0 - 2V) : TV mode Input impedance : More10k ohms Input capacitance : Less than 2nF
9	○	○	○	Ground (Green)	
10	○	○	○	Open	
11	○	●	●	Green	
12	○	○	○	Open	
13	○	○	○	Ground (Red)	
14	○	○	○	Ground (Blanking)	
15	○	—	—	Red input	0.7 ± 3dB, 75 ohms, positive
	—	○	○	(S signal) croma input	0.7 ± 3dB, 75 ohms, positive
16	○	●	●	Blanking input (Ys signal)	High state (1 - 3V) Low state (0 - 0.4V) Input impedance : 75 ohms
17	○	○	○	Ground (Video output)	
18	○	○	○	Ground (Video input)	
19	○	○	○	Video output	1V ± 3dB, 75ohms, positive sync : 0.3V (-3 + 10dB)
20	○	—	—	Video input	1V ± 3dB, 75ohms, positive sync : 0.3V (-3 + 10dB)
	—	○	○	Video input Y (S signal)	1V ± 3dB, 75ohms, positive sync : 0.3V (-3 + 10dB)
21	○	○	○	Common ground (plug, sheild)	

○ Connected ● Not Connected (Open) * at 20Hz - 20kHz

Pin No.	Signal	Signal Level
1	Ground	
2	Ground	
3	Y (S signal) input	1V ± 3dB 75 ohm, positive Sync. 0.3V -3 + 10dB
4	C (S signal) input	0.3V ± 3dB 75ohm, positive Sync.



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CAUTION

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT, AFTER REMOVING THE ANODE.

ATTENTION

APRES AVOIR DECONNECTE LE CAP DE L'ANODE, COURT-CIRCUITER L'ANODE DU TUBE CATHODIQUE ET CELUI DE L'ANODE DU CAP AU CHASSIS METALLIQUE DE L'APPAREIL, OU AU COUCHE DE CARBONE PEINTE SUR LE TUBE CATHODIQUE OU AU BLINDAGE DU TUBE CATHODIQUE.

WARNING !!

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD, BECAUSE OF LIVE CHASSIS.
THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE AC POWER LINE.

ATTENTION !!

AFIN D'EVITER TOUT RISQUE D'ELECTROCUTION PROVENANT D'UN CHÁSSIS SOUS TENSION, UN TRANSFORMATEUR D'ISOLEMENT DOIT ETRE UTILISÉ LORS DE TOUT DÉPANNAGE.
LE CHÁSSIS DE CE RÉCEPTEUR EST DIRECTEMENT RACCORDÉ À L'ALIMENTATION SECTEUR.

SAFETY-RELATED COMPONENT WARNING!!

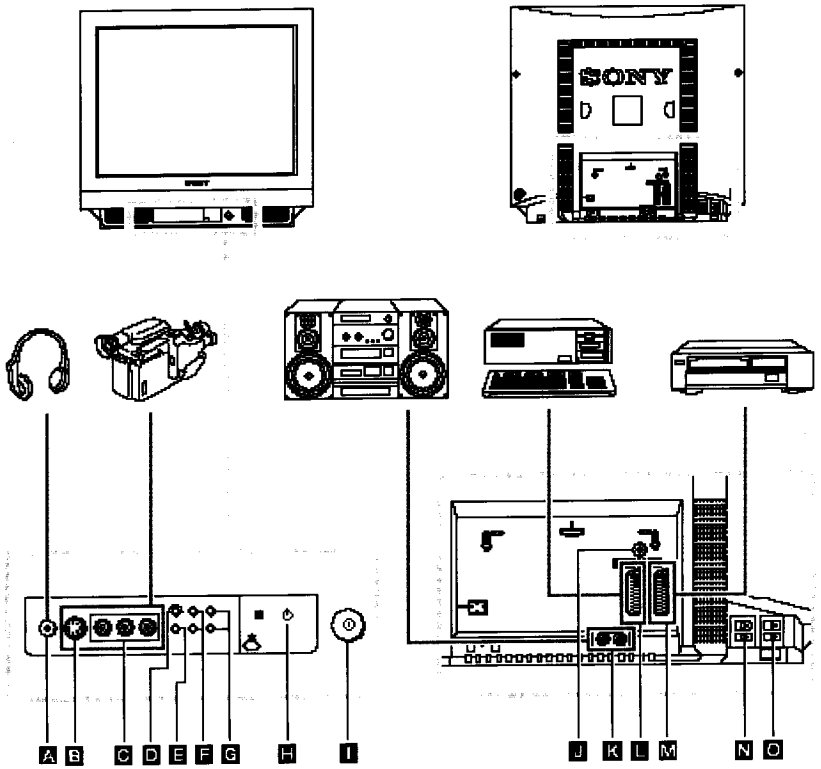
COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND, IN THE PARTS LIST ARE CRITICAL FOR SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

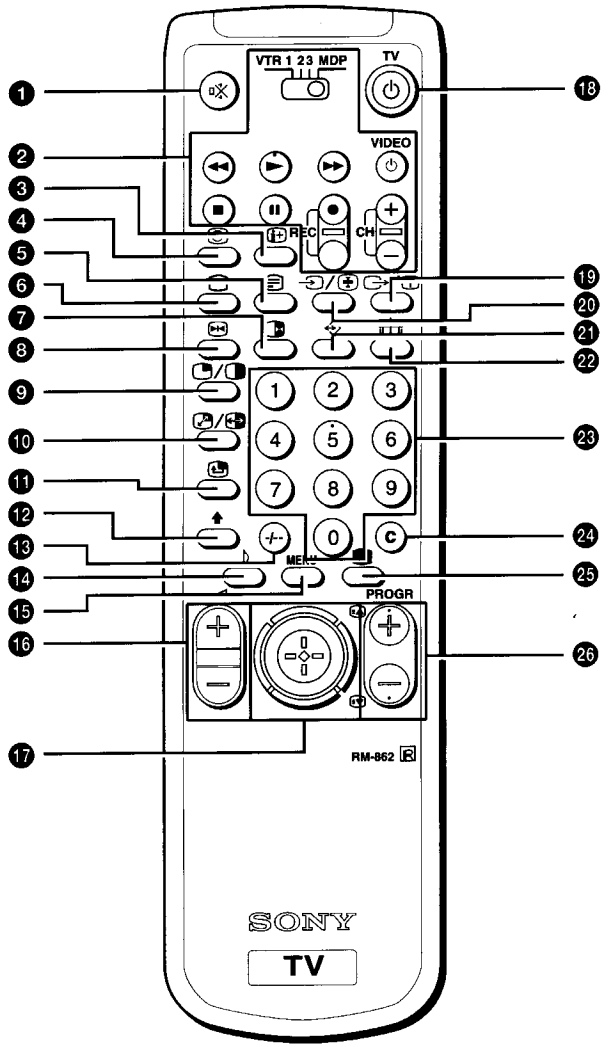
ATTENTION AUX COMPOSANTS RELATIFS À LA SÉCURITÉ!!

LES COMPOSANTS IDENTIFIÈS PAR UNE TRAME ET PAR UNE MARQUE ⚠ SUR LES VUES EXPLOSÉES ET LES LISTES DE PIECES SONT D'UNE IMPORTANCE CRITIQUE PUR LA SÉCURITÉ DU FONCTIONNEMENT. NE LES REMPLACER QUE PAR DES COMPOSANTS SONY DONT LE NUMÉRO DE PIÉCE EST INDIQUÉ DANS LE PRÉSENT MANUEL OU DANS DES SUPPLÉMENTS PUBLIÉS PAR SONY.

SECTION 1 GENERAL

The operating instructions mentioned here are partial abstracts from the Operating Instruction Manual. The page numbers of the Operating Instruction Manual remain as in the manual.





Overview

This section briefly describes the controls and the buttons on the TV set and on the Remote Commander. Please open the flap at the front of the Instruction manual for illustrations of the TV set and the Remote Commander. Letters in boxes refer to the buttons on the TV set, numbers in circles to the buttons on the Remote Commander. For more information, refer to the page numbers given next to each description.

TV buttons and Terminals

Reference and Symbol	Name	Refer to Page
Front of the set		
A ∩	Headphones jack	4
B S 3	S video input jack	33
C 3, 3	Audio/video input jacks	33
D ▶▶|	Automatic Preset button	12
E	Input mode button	14
F +/-	Volume control	13
G P +/-	Programme button	13
H ⏻	Standby mode indicator	13
I ⏻	Main power switch	13
Rear of the set		
J	Aerial socket	11
K	Audio phono jacks	33
L 1	21 pin Euro connector	33
M 2/S 2	21 pin Euro connector	33
N L/G/S/I, R/D/D/D	Left/Right speaker terminals (KV-25F2U, 29F2U only)	10
O S	Surround speaker terminals (KV-25F2U, 29F2U only)	10

Remote Commander Operation

Reference and Symbol	Name	Refer to Page
❶	Muting on/off button	13
❷	**VCR operation**	36
VTR123MDP	Video equipment selector	
◀◀ ▶ ▶▶ ■ ❚❚ ●	Video equipment operation buttons	
VIDEO ⏻, CH +/-		
❸	On-screen display button	13
❹	Time display button	13
❺	Teletext button	14
❻	TV power on/TV mode button	13, 14
❼❽❾❿⓫⓬	No function on this set	-
⓭ - / - -	Double digit entering button	13
⓮ ♪	Sound mode button	20
⓯ **MENU**	Menu on/off button	15
⓰ +/-	Volume control button	13
⓱	Joystick for menu selection. Press to confirm selection (OK function)	15
⓲ TV⏻	TV standby button	13
⓳	Teletext: reveal button	31
⓴ /	Input mode button	14, 31
	Teletext: Freezing the subpage	
㉑	Teletext: Favourite pages button	32
㉒	Button to change screen format	13
㉓ 1, 2, ... 9, 0	Number buttons	13
㉔ **C**	Direct channel button	14
㉕ ■	Picture mode button	20
㉖ **PROGR** +/-	Programme buttons Teletext: Page up/page down buttons	13, 14

Step 2

Connecting the Aerial

(If you connect a VCR, skip to step 3)

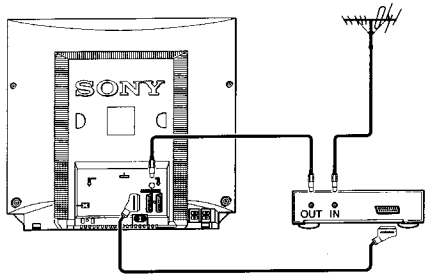
Insert the aerial plug tightly into the aerial socket ⊓ J. Use a good-quality aerial cable (not supplied), corresponding to the relevant regulations.

Step 3

Connecting a VCR

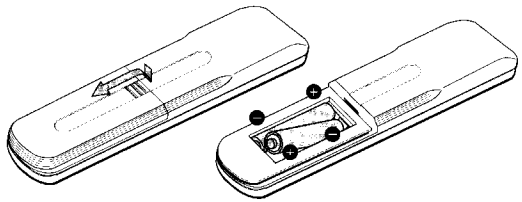
We recommend that you tune in the VCR signal to programme number "0". For details, see "Presetting Channels Manually" on page 17.

See "Connecting Optional Equipment" on page 33 for more information.



Step 4

Inserting the Batteries Into the Remote Commander



Respect your environment! Dispose of used batteries in an environmentally friendly way.

Step 5

Presetting Channels Automatically

With this function, the TV can automatically search and store up to 100 different channel numbers.

If you prefer manual presetting, refer to "Presetting Channels Manually" on page 17.

1 Plug into mains.
Press the power switch ⏻ I on the TV set.

2 Press and hold the button ▸▸□ D on the TV set until the automatic menu is displayed and the search starts.

After all available channels are stored, the normal TV picture is shown.

Note: Channels are automatically stored as follows:

Programme 1	BBC1
Programme 2	BBC2
Programme 3	ITV
Programme 4	CH4 or S4C

TV Operation

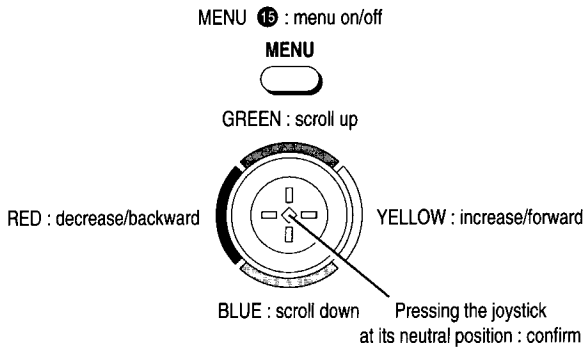
This section explains functions used whilst watching TV. Most operations are carried out using the remote commander (numbers in circles). All basic functions are also available on the TV set (letters in boxes). Open the flap at the front of the Instruction Manual to see the illustrations of the Remote Commander and the TV set.

To	Press
Switch on	U I on TV
Switch off temporarily	⏻ ⓲ TV is now in standby mode and ⏻ H indicator on TV lights up.
Switch on from standby mode	▢ ❻, PROGR +/- ㉖ G or any number button ㉓
Switch off completely	⏻ I on TV To save energy, switch off your TV completely when TV is not in use.
Select programmes	PROGR +/- ㉖ G or number buttons ㉓ For double digit number, press -/- - ⓭ then the number e.g. For 23, press -/- - ⓭ then 2 and 3.
Display on screen indications	ⓘ ❸. Press again to make the indications disappear.
Adjust the volume	◿ ⓰ F + or -
Mute the sound	🔇 ❶. Press again to restore the sound.
Display the time (only available when teletext is broadcast)	◴ ❹. Press again to make the display disappear.
View programmes in 16:9 mode	▭ ㉒. Press again to return to 4:3 mode.

To	Press
Tune in a channel temporarily	C ㉔. The indication "C" appears.
View video input picture (see page 34 for detailed information)	→ ⓴ E repeatedly until the desired video input appears. Press ▢ ❻ to restore the TV picture.
View teletext (see page 31 for detailed information)	
Switch on	▤ ❺
Select a page	three number buttons ㉓ or ▤▲ ㉖ (for next page) or ▤▼ ㉖ (for previous page).
Use fastext	Push joystick ⓱ to select a colour.
Switch off	▢ ❻

Adjusting and Setting the TV Using the Menu

You can adjust and set various functions on the TV using the following remote commander buttons:

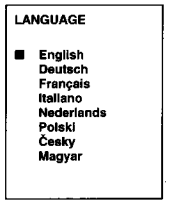

MENU ⑮ : menu on/off
MENU
GREEN : scroll up
RED : decrease/backward
YELLOW : increase/forward
BLUE : scroll down
Pressing the joystick at its neutral position : confirm

Choosing the Menu Language

This function enables you to change the language of the menu screens.

1 Press power switch ⏻ I on the TV. If the standby indicator ⏻ H on the TV is lit, press ▭ ⑥ or a number button ㉓ on the Remote Commander.

2 Press the MENU button ⑮ on the remote commander.



3 Push to blue or green to select the language you want then push to yellow.

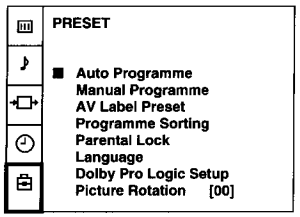
4 Press the MENU button ⑮ to restore the normal TV picture.

Presetting Channels Automatically

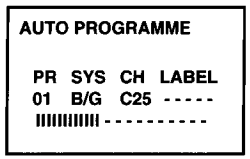
You may have already preset the channels automatically by using the method shown on page 12. You can also preset channels automatically by using the remote commander as follows:

1 Press the MENU button ⑮.

2 Push joystick ⑰ to blue or green to select the symbol 🧰 on the menu screen then push to yellow.



3 Push to blue or green to select 'Auto Programme'.



4 Push to yellow and hold until the automatic menu is displayed and the search starts.
After all available channels have been preset, the normal TV picture is shown.

Note: Channels are automatically stored as follows:

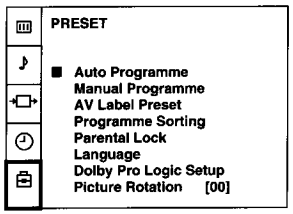
Programme 1	BBC1
Programme 2	BBC2
Programme 3	ITV
Programme 4	CH4 or S4C

Presetting Channels Manually

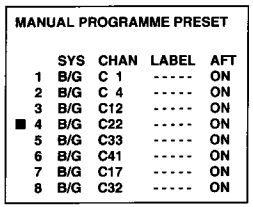
This function enables you to preset channels one by one to different programme numbers. This is also convenient for allocating programme numbers to various video input sources.

1 Press the MENU button ⓯.

2 Push joystick ⓱ to blue or green to select the symbol 🧰 on the menu screen then push to yellow.



3 Push to blue or green to select 'Manual Programme' then push to yellow .



4 Push to blue or green to select on which programme number you want to preset a channel then push to yellow.

5 Push to blue or green to select the TV broadcast system (I) or a video input source (AV1, AV2,...) then push to yellow.

6 Select the first number digit of 'CHAN' then the second number digit of 'CHAN' with the number buttons ㉓ on the remote commander

or

Push joystick ⓱ to blue or green to search for the next available channel number.

7 If you want to store the channel number, go to step 8. If not, select a new channel number using the number buttons ㉓ on the remote commander or push to blue or green to resume the search.

8 Press the joystick ⓱.

9 Repeat steps 4 to 8 to preset other channels.

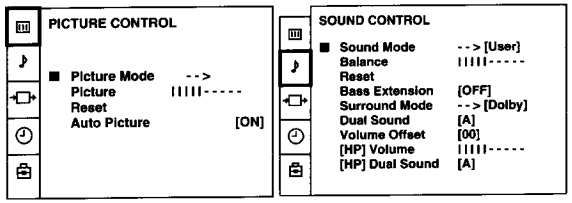
10 Press the MENU button ⓯ to restore the normal TV picture.

Adjusting the Picture and Sound

Although the picture and sound are adjusted at the factory, you can adjust them to suit your own taste.

1 Press the MENU button ⓯.

2 Push joystick ⓱ to blue or green to select ▤ for picture control or ♪ for sound control then push to yellow.



3 Push to blue or green to select the desired item then push to yellow.

4 Push to red or yellow to alter the item then press the joystick ⓱.
For the effect of each control, see the following tables.

5 Repeat steps 3 and 4 to adjust the other items.

6 Press the MENU button ⓯ to restore the normal TV picture.

PICTURE CONTROL	Effect
Picture Mode	User —> Game —> Movie —> Sports —> Live In 'User' mode, you can preset Brightness, Colour, Sharpness and Hue (NTSC signals only) as follows: **1** Push joystick ⓱ to blue or green to select the desired item then push to yellow. **2** Push to red or yellow to adjust then press the joystick ⓱. **3** Push to red to return to the PICTURE CONTROL menu.
Contrast	Darker —— I —— Brighter
Reset	Resets picture to the factory preset levels.
Auto Picture	All the picture levels automatically change according to the surrounding lighting level. (Auto Picture Control)
Format	Wide screen effect (16:9)

SOUND CONTROL	Effect
Sound Mode	User —> Rock —> Jazz —> Pop In 'User' mode, you can preset Treble and Bass as follows. **1** Push joystick ⓱ to blue or green to select the item then push to yellow. **2** Push to red or yellow to adjust then press the joystick ⓱. **3** Push to red to return to the 'SOUND CONTROL' menu.
Balance	Left —— I —— Right
Reset	Resets sound to the factory preset levels.
Spatial	Pro Logic —> Pseudo Stereo —> Spatial —> Club —> Theatre—> Hall —> Church —> Stadium —> Off Acoustic sound effect
Dual Sound	A: Left channel —> B: Right channel —> stereo —> mono
Volume Offset	Presets the volume level for individual programmes. -12 —— 0 —— +12
∩ Volume	Adjusts the headphone volume.
∩ Dual Sound	Presets the headphone channels. A: Left channel —> B: Right channel —> stereo —> mono

Changing Modes Quickly

You can quickly change the Sound Mode, or the Picture Mode without entering the 'SOUND CONTROL' or the 'PICTURE CONTROL' menu.

1 Press ■ ㉕ for the picture or ♪ ⓮ for the sound.

2 Push joystick ⓱ to blue or green to select the desired mode then push to yellow.

3 Press ■ ㉕ or ♪ ⓮ again to restore the normal TV screen.

Manual Fine-Tuning

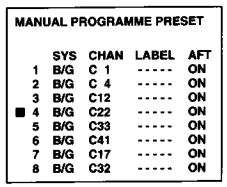
Normally, the automatic fine-tuning (AFT) function is operating.

If the picture is distorted however, you can manually fine-tune the TV to obtain a better picture reception.

1 Press the MENU button ⓯.

2 Push joystick ⓱ to blue or green to select the symbol 🧰 on the menu screen then push to yellow.

3 Push to blue or green to select 'Manual Programme' then push to yellow.



4 Push to blue or green to select the programme number which corresponds to the channel you want to manually fine-tune.

5 Push to yellow repeatedly until the AFT position changes colour..

6 Push to blue or green to change the frequency of the channel from -15 to +15.

7 Press the joystick ⓱.

8 Repeat steps 4 to 7 to fine-tune other channels.

9 Press the MENU button ⓯ to restore the normal TV picture.

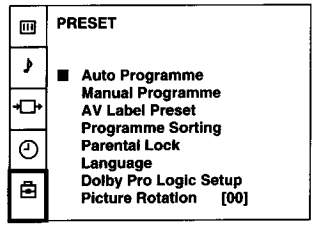
Sorting Programme Positions

This function enables you to move channels to different programme numbers.

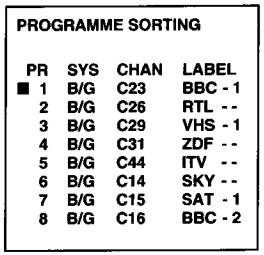
1 Press the MENU button ⓯.

2 Push joystick ⓱ to blue or green to select the symbol 🧰 on the menu screen then push to yellow.

3 Push to blue or green to select 'Programme Sorting' then push to yellow .



4 Push to blue or green to select the channel you want to move to another programme number then push to yellow.


PROGRAMME SORTING
PR SYS CHAN LABEL
■ 1 B/G C23 BBC - 1
2 B/G C26 RTL - -
3 B/G C29 VHS - 1
4 B/G C31 ZDF - -
5 B/G C44 ITV - -
6 B/G C14 SKY - -
7 B/G C15 SAT - 1
8 B/G C16 BBC - 2

5 Push to blue or green to select the programme number to which you want to move the channel selected in step 4 then push to yellow.

6 Repeat steps 4 to 5 if you wish to move other channels to different programme numbers.

7 Press the MENU button ⓯ to restore the normal TV picture.

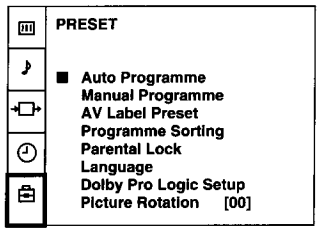
Using Parental Lock

This function enables you to prevent undesirable broadcasts from appearing on the screen. We suggest you use this function to prevent children from watching programmes which you consider unsuitable.

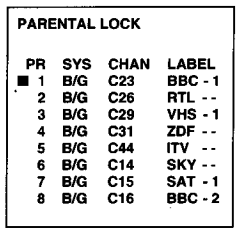
1 Press the MENU button ⓯.

2 Push joystick ⓱ to blue or green to select the symbol 🧰 on the menu screen then push to yellow.

3 Push to blue or green to select 'Parental Lock' then push to yellow.



4 Push to blue or green to select the channel you want to block then push to yellow. The symbol appears before the programme number to indicate that this channel is now blocked.


PARENTAL LOCK
PR SYS CHAN LABEL
1 B/G C23 BBC - 1
2 B/G C26 RTL - -
3 B/G C29 VHS - 1
4 B/G C31 ZDF - -
5 B/G C44 ITV - -
6 B/G C14 SKY - -
7 B/G C15 SAT - 1
8 B/G C16 BBC - 2

5 Repeat step 4 if you wish to block other channels.

6 Press the MENU button ⓯ to restore the normal TV picture.

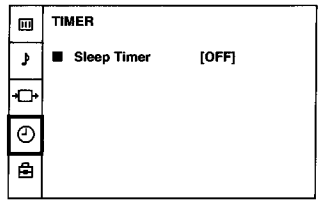
Note: To unblock, push to yellow after selecting the channel to unblock in the 'Parental Lock' menu.

Using the Sleep Timer

This function enables you to select a time period after which the TV automatically switches into standby mode.

1 Press the MENU button ⓯.

2 Push joystick ⓱ to blue or green to select the symbol 🕘 on the menu screen then push to yellow.



3 Push to yellow.

4 Push to red or yellow to set time delay and press the joystick ⓱.

OFF 0:30 1:00 1:30 ..... 3:30 4:00

One minute before the TV switches into standby mode, a message is displayed on the screen.

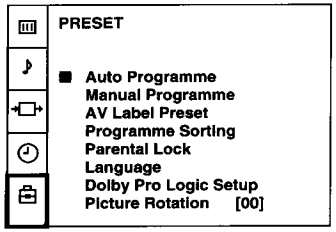
5 Press the MENU button ⓯ to restore the normal TV picture.

Adjusting the Picture Rotation

If, due to the earth magnetism, the picture slants, you can use the function 'Picture Rotation' to readjust the picture.

1 Press the MENU button ⓯.

2 Push joystick ⓱ to blue or green to select the symbol 🧰 on the menu screen then push to yellow.



3 Push to blue or green to select 'Picture Rotation' then push to yellow.

4 Push to red or yellow to adjust the picture rotation then press the joystick ⓱. The adjusting range is -5 to +5.

5 Press the MENU button ⓯ to restore the normal TV picture.

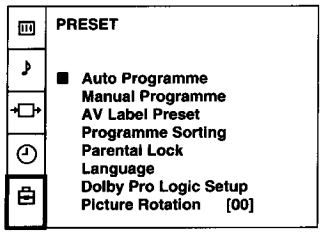
Skipping Programme Positions

This function enables you to skip unused channels when selecting programme numbers with the PROGR+/- buttons. However, you can still watch the skipped channel(s) by using the number buttons.

1 Press the MENU button ⓯.

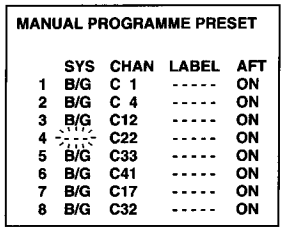
2 Push joystick ⓱ to blue or green to select the symbol 🧰 on the menu screen then push to yellow.

3 Push to blue or green to select 'Manual Programme' then push to yellow.



4 Push to blue or green to select the channel you want to skip then push to yellow.

5 Push to blue or green until '- - -' appears in the 'SYS' position.



6 Press the joystick ⓱.

7 Repeat steps 4 to 6 to skip other channels.

8 Press the MENU button ⓯ to restore the normal TV picture.

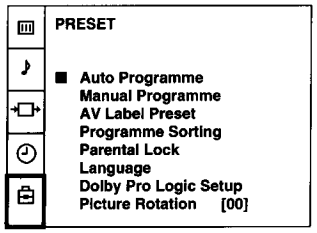
Captioning a Station Name

Names for channels are usually automatically taken from teletext if available. You can however name a channel or an input video source using up to five characters (letters or numbers).

1 Press the MENU button ⓯.

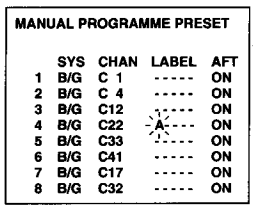
2 Push joystick ⓱ to blue or green to select the symbol 🧰 on the menu screen then push to yellow.

3 Push to blue or green to select 'Manual Programme' then push to yellow.



4 Push to blue or green to select the channel you wish to caption then push to yellow repeatedly until the first element of the 'LABEL' position is highlighted.

5 Push to blue or green to select a letter or number and push to yellow (select '-' for a blank). Select other characters in the same way.



6 After selecting all the characters, press the joystick ⓱.

7 Repeat steps 4 to 6 to caption names for other channels.

8 Press the MENU button ⓯ to restore the normal TV screen.

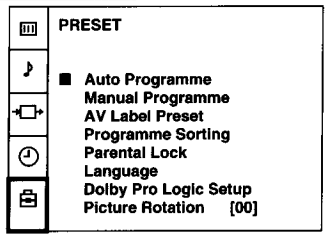
Setting Up Dolby Pro Logic

Before viewing Dolby Pro Logic encoded programmes, you have to set up the levels or modes of the speakers.
Normally this is required only when you install the TV and the speakers or change their positions.

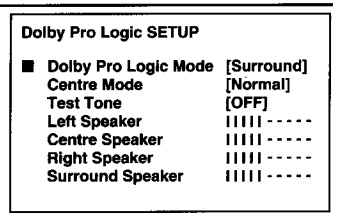
1 Press the MENU button ⓯.

2 Push joystick ⓱ to blue or green to select the symbol 🧰 on the menu screen then push to yellow.

3 Push to blue or green to select 'Dolby Pro Logic Setup' then push to yellow.



4 Push to blue or green to select 'Mode' then push to yellow.



5 Push to blue or green to select the mode then press the joystick ⓱.

Dolby Pro Logic:	if you want to use all the five speakers
Dolby 3 Stereo:	if you do not want to use the surround speakers

6 Push to blue or green to select 'Centre Mode' then push to yellow.

7 Push to blue or green to select the desired mode then press the joystick ⓱.

Normal:	if you want to activate all the speakers
Wide:	if you want a wider bandwidth sound effect
Phantom:	if you do not want to use the centre speaker

8 Push to blue or green to select 'Test Tone' then push to yellow.

9 Push to blue or green to select 'On' then press the joystick ⓱.
The test tone cycles through all the speakers.

10 Push to blue to select 'Left Speaker' then push to yellow.
The test tone stays at the selected speaker only.

11 Push to red or yellow to adjust the sound level then press the joystick ⓱.

12 Push to blue or green to select another speaker then push to yellow.

13 Repeat steps 11 to 12 to adjust the sound levels of all the speakers.

14 Press the MENU button ⓯ to restore the normal TV screen.

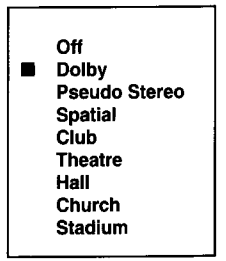
— 17 —

Presetting Dolby Pro Logic

With Dolby Pro Logic Surround mode selected, you can experience three dimensional sound when watching Dolby Surround encoded programmes.
To experience programmes encoded in Dolby Surround sound, preset the surround mode to 'Dolby' as shown below.

1 Press ♪ ⓮ on the remote commander.

2 Push joystick ⓱ to blue or green to select 'Pro Logic' then push to yellow.



3 Press ♪ ⓮ to restore the normal TV screen.

Or alternatively you can select 'Pro Logic' in the surround mode of the 'SOUND CONTROL' menu (see page 19)

Most TV channels broadcast information via teletext. The index page of the broadcaster (usually page 100) gives you information on how to use the service.
Make sure you use a TV channel with a strong signal, otherwise teletext errors may occur.

Switching Teletext on and off

1 Select the channel which carries the teletext service you wish to view.

2 Press ⊜ ❺ to display teletext.
If no teletext signal is broadcast, the indication P100 is displayed on a black screen.

3 Input three digits for the page number using the number buttons ㉓.
The page counter searches for the page and after some seconds the page is displayed.

4 Press ▢ ❻ to return to the normal TV picture.

Using Other Teletext Functions

To	Press
Access the next or preceding teletext page	⊜▲ ㉖ for the next page or ⊜▼ ㉖ for the preceding page
Mix the mode	⊜ ❺ when in teletext mode. Now the teletext page is superimposed on the TV programme. Press again to return to the normal teletext display.
Freeze a teletext subpage	⊜ ⑳. Press once again to cancel.
Reveal hidden information (eg: answers to a quiz)	? ⑲. Press once again to cancel.

Favourite page system

You can store up to four of your favourite teletext pages per Teletext service. In this way you have quick access to the pages you frequently use.

Storing pages

1 Use the number buttons ㉓ to select the page you would like to store.

2 Press ⇳ ㉑ twice.
The colour prompts at the bottom of the screen flash.

3 Push the joystick ⑰ to store the selected page.
The page is now stored on this colour.

Repeat steps 1 to 3 for the other 3 pages.

Displaying the Favourite Pages

1 Press ⇳ ㉑.

2 Push the joystick ⑰ to the colour on which the desired page is stored.

Make sure you press ⇳ ㉑, otherwise the normal Fastext facility operates.

Using Fastext

(only available, if the TV station broadcasts Fastext signals)

With Fastext you can access pages with one key stroke . When Fastext is broadcast, a colour-coded menu appears at the bottom of the screen. The colours of this menu correspond to the red, green, yellow and blue marks on the Remote Commander.

Push the joystick ⑰ to the colour mark which corresponds to the colour-coded menu. The page is displayed after some seconds.

Connecting Optional Equipment

There is a wide range of optional equipment you can connect to your TV. Refer to the illustrations on the front flap page of this manual.

Symbol	Acceptable input signals	Available output signals
1 L	Normal audio/video and RGB	Audio/video from TV tuner
2/S 2 M	Normal audio/video and S video source	Audio/video from selected
3, 3 B S 3 C	Normal audio/video and S video	No output
K	No inputs Audio from selected source.	

About S video input

Video signals may be separated into Y (luminance) and C (chrominance) signals. Separating the two signals prevents interference and thus improves the picture quality.

Notes on connections:

If the picture or sound is distorted, move the VCR away from the TV.

When connecting a monaural VCR, connect only the white jack to both the TV and VCR.

Selecting Input and Output Signals

This section explains how to view the video input picture and how to select the output signal. You can use direct access buttons 20 E to select the input or the menu system to select input and output.

Selecting With Direct Access Buttons

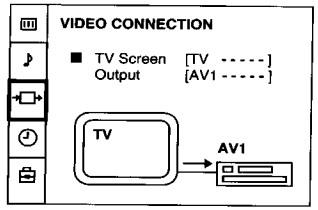
Press 20 E repeatedly.
Press 6 to restore the normal TV picture.

Symbol on the screen	Input Signal
1	Audio/video through Euro AV connector L
	RGB through Euro AV connector L
2	Audio/video through Euro AV connector M
S 2	S video through Euro AV connector M
3	Audio/video through the phono jacks C
S 3	S video through the phono jacks B

Selecting With the Video Connection Menu

1 Press the MENU button 15.

2 Push joystick 17 to blue or green to select for "Video Connection" then push to yellow.



3 Push to blue or green to select input or output then push to yellow 17.

4 Push to blue or green repeatedly to select the desired input or output source then press the joystick 17.

5 Press the MENU button 15 to restore the normal TV picture.

Note: If you select 'Auto' for output, the output source automatically becomes the same as the desired input source.

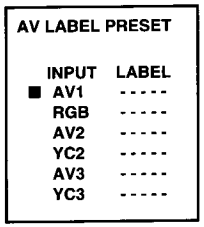
Using AV Label Preset

This function enables you to label the input sources using up to five characters (letters or numbers).

1 Press the MENU button ⓯.

2 Push joystick ⓱ to blue or green to select the symbol 🧰 on the screen then push to yellow.

3 Push to blue or green to select 'AV Label Preset' then push to yellow.



4 Push to blue or green to select the desired input source then push to yellow.

5 Push to blue or green to select a letter or number then push to yellow (select '-' for a blank).
Select other characters in the same way.

6 After selecting all the characters, press the joystick ⓱.

7 Repeat steps 4 to 6 label other input sources.

8 Press the MENU button ⓯ to restore the normal TV screen.

Remote Control of Other Sony Equipment

You can control other Sony remote controlled equipment using the buttons ❷ on the Remote Commander.

1 Set the VTR 1/2/3 MDP selector according to the equipment
VTR 1: Beta VCR
VTR 2: 8mm VCR
VTR 3: VHS VCR
MDP: Video Disk Player

2 Use the buttons ❷ to operate the equipment.

Notes:
- If your video equipment has a COMMAND MODE selector, set this selector to the same position as the VTR 1/2/3 MDP selector on the TV Remote Commander
- If the equipment does not have a certain function, the corresponding button on the Remote Commander does not work.

Troubleshooting

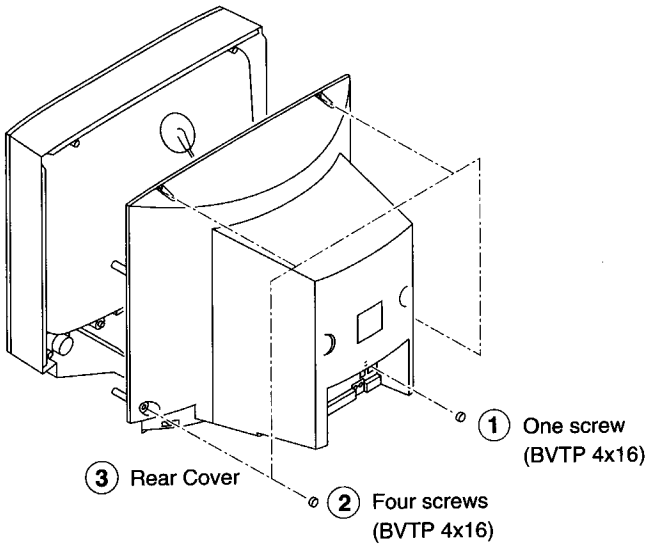
Here are some simple solutions to the problems which affect the picture and sound.

Problem	Solution
No picture (screen is dark), no sound	• Plug the TV in. • Press ⏻ I on the TV. (If ⏻ indicator H is on, press 6 or a programme number 23 on the Remote Commander.) • Check the aerial connection. • Check if the selected video source is on. • Turn the TV off for 3 or 4 seconds then turn it on again using ⏻ I.
Poor or no picture (screen is dark), but good sound	• Press MENU 15 to enter the 'PICTURE CONTROL' menu and adjust 'Picture', 'Brightness' and 'Colour'.
Poor picture quality when watching an RGB video source.	• Press → 20 E repeatedly to select →.
Good picture but no sound	• Press + 16 F. • If 🔇 is displayed on the screen, press 🔇 1.
No colour for colour programmes	• Press MENU 15 to enter the 'PICTURE CONTROL' menu, select 'Reset' then press the joystick 17.
Remote Commander does not function.	• Replace the batteries

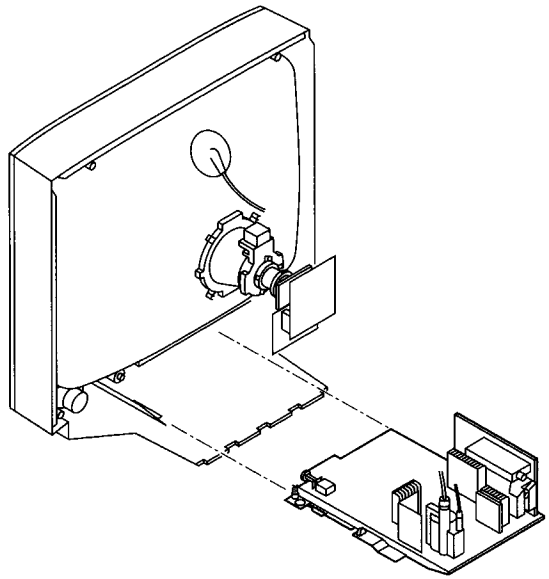
If you continue to have problems, have your TV serviced by qualified personnel. Never open the casing yourself.

SECTION 2
DISASSEMBLY

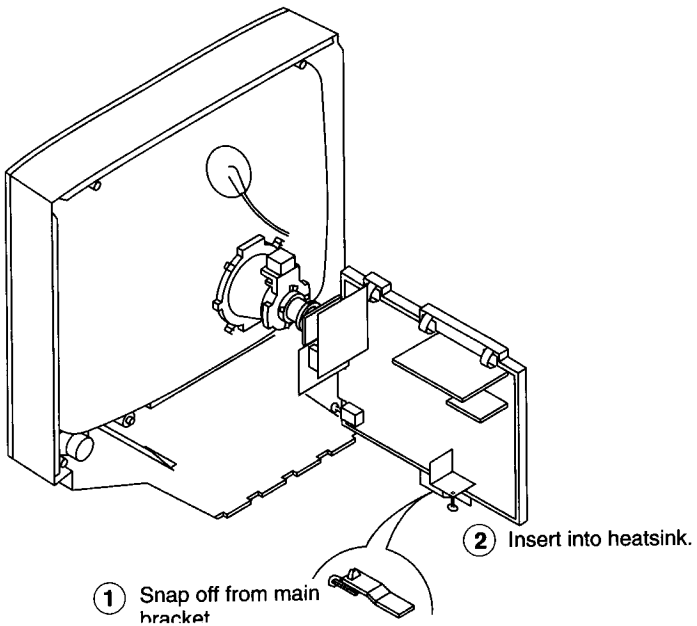
2-1. REAR COVER REMOVAL



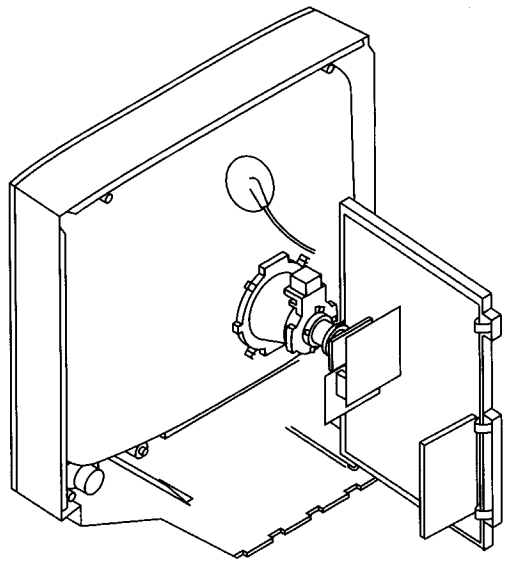
2-2. CHASSIS ASSY REMOVAL



2-3-1. SERVICE POSITION (1)

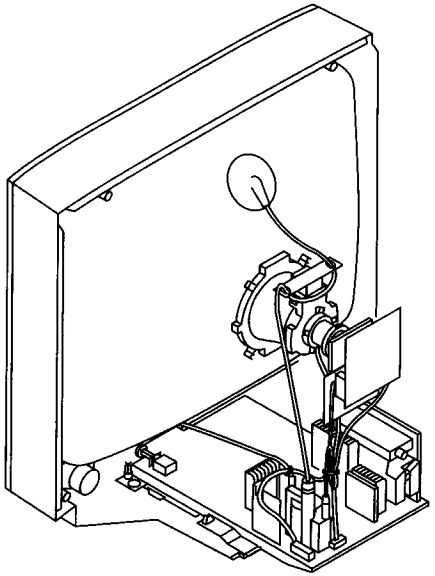


2-3-2. SERVICE POSITION (2)

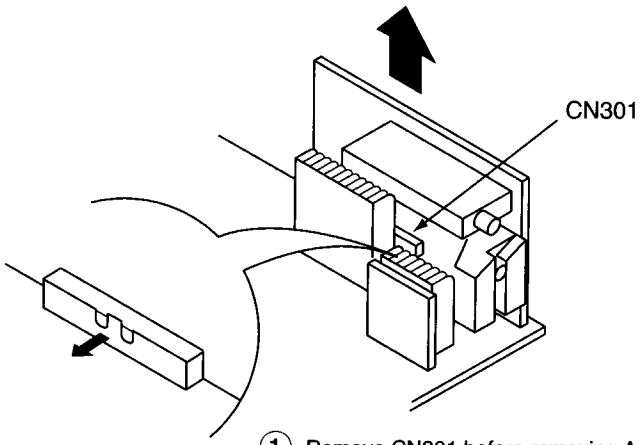


Clip bracket into Beznet.

2-4. WIRE DRESSING

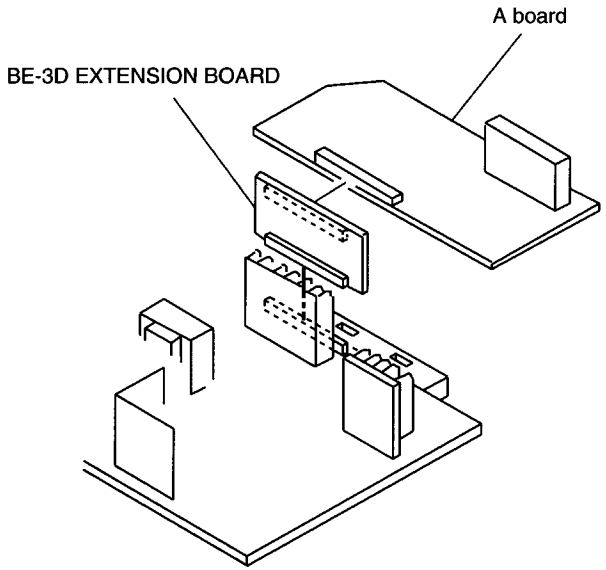


2-5. A BOARD REMOVAL

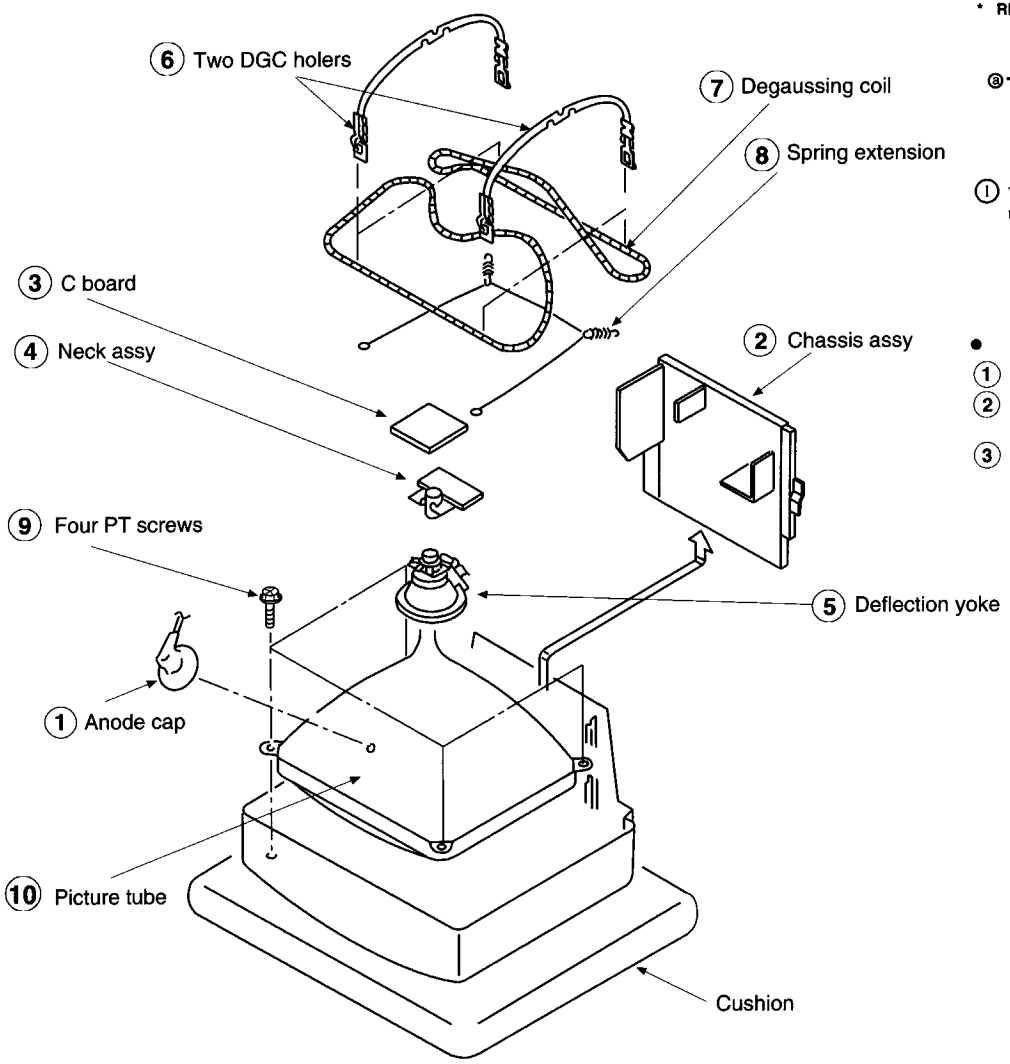


(1) Remove CN301 before removing A board.

2-6. EXTENSION BOARD



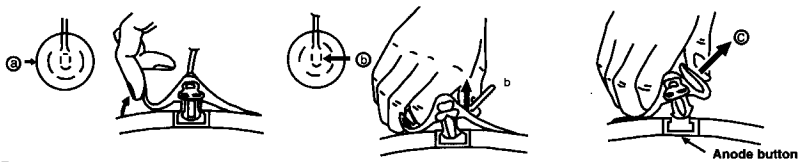
2-7. PICTURE TUBE REMOVAL



• REMOVAL OF ANODE-CAP

Note: Short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT shield or carbon paint on the CRT, after removing the anode.

* **REMOVING PROCEDURES.**



① Turn up one side of the rubber cap in the direction indicated by the arrow ⓐ

② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ⓑ

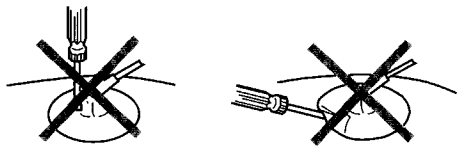
③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling it up in the direction of the arrow ⓒ

• HOW TO HANDLE AN ANODE-CAP

① Don't damage the surface of anode-cap with sharp shaped material !

② Don't press the rubber hardly not to hurt inside of anode-caps !
A metal fitting called as shatter-hook terminal is built into the rubber.

③ Don't turn the foot of rubber over hardly !
The shatter-hook terminal will stick out or damage the rubber.



SECTION 3
SET - UP ADJUSTMENTS

- When complete readjustment is necessary or a new picture tube is installed, carry out the following adjustments.
- Unless there are specific instructions to the contrary, carry out these adjustments with the rated power supply.
- Unless there are specific instructions to the contrary, set the controls and switches to these settings :

◑ Contrast ..... 80% (or remote control normal)
☼ Brightness 50%

- Carry out the following adjustments in this order :

1. Beam landing
2. Convergence
3. Focus
4. White balance

Note: Testing equipment required.
1. Color bar/pattern generator
2. Degausser
3. DC power supply
4. Digital multimeter
5. Oscilloscope

Preparation:
- In order to reduce the influence of geomagnetism on the set's picture tube, face it east or west.
- Switch on the set's power and degauss with the degausser.

3-1. BEAM LANDING

1. Input the white signal with the pattern generator.
   CONTRAST } normal
   BRIGHTNESS }
2. Position neck assy as shown in Fig.3-2.
3. Set the pattern generator raster signal to red.
4. Move the deflection yoke forward and adjust with the purity control so that the red is at the centre and the blue and the green take up equally sized areas on each side. (See Fig. 3-1 - 3-3)
5. Move the deflection yoke forward and adjust so that the entire screen becomes red. (See Fig. 3-1)
6. Switch the raster signal to blue, then to green and verify the condition.
7. When the position of the deflection yoke has been decided, fasten the deflection yoke with the screws.
8. If the beam does not land correctly in all the corners, use a magnet to adjust it. (See Fig. 3-4)

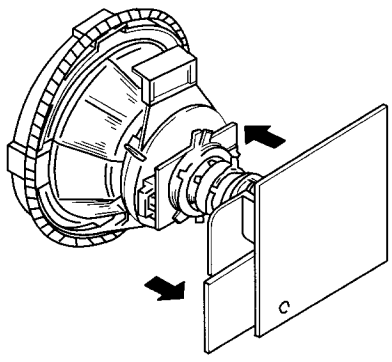
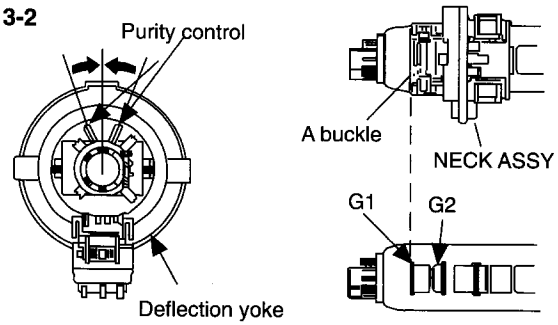


Fig. 3-1

Fig. 3-2



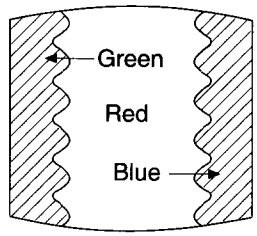


Fig. 3-3

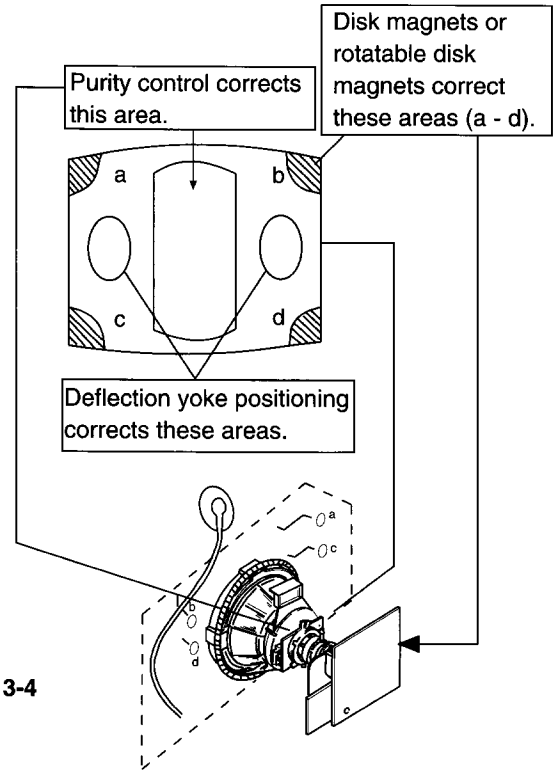


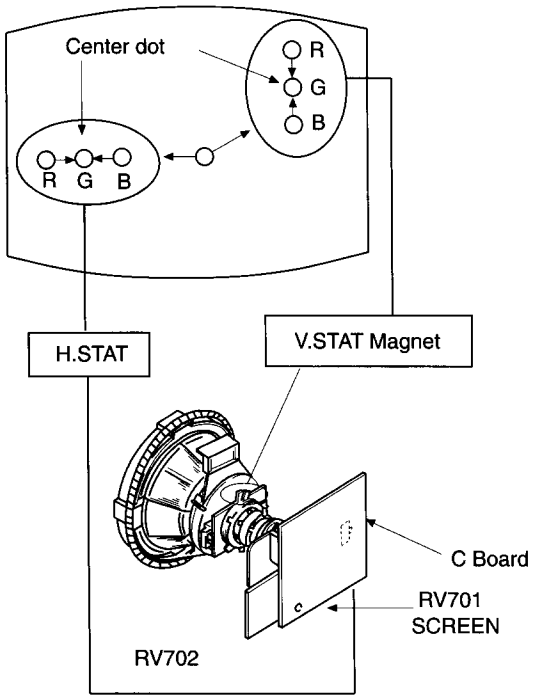
Fig. 3-4

3-2. CONVERGENCE

Preparation:

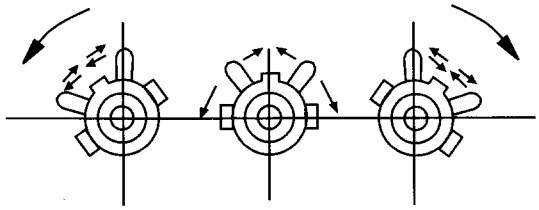
- Before starting this adjustment, adjust the focus, horizontal size, and vertical size.
- Minimize the brightness setting.
- Provide a dot pattern.

(1) Horizontal and vertical static convergence

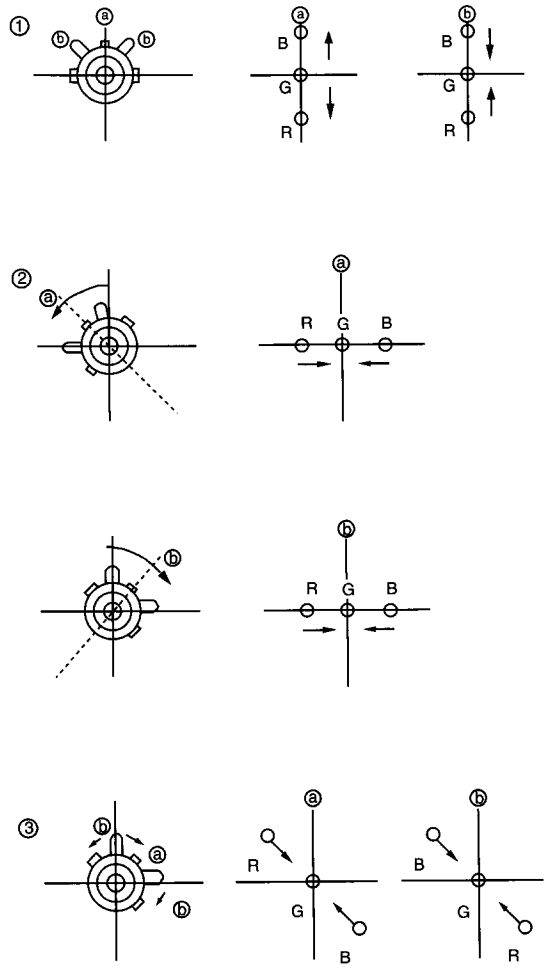


1. (Moving horizontally), adjust the H.STAT control so that the red, green, and blue points are on top of each other at the centre of the screen.
2. (Moving vertically), adjust the V.STAT magnet so that the red, green, and blue points are on top of each other at the centre of the screen.
3. If the H.STAT variable resistor cannot bring the red, green, and blue points together at the centre of the screen, adjust the horizontal convergence with the H.STAT variable resistor and the V.STAT magnet in the manner given below.
   (In this case, the H.STAT variable resistor and the V.STAT magnet influence each other)

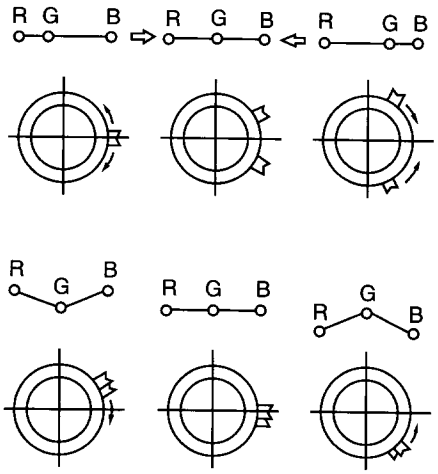
- Tilt the V.STAT magnet and adjust the static convergence by opening or closing the V.STAT magnet.

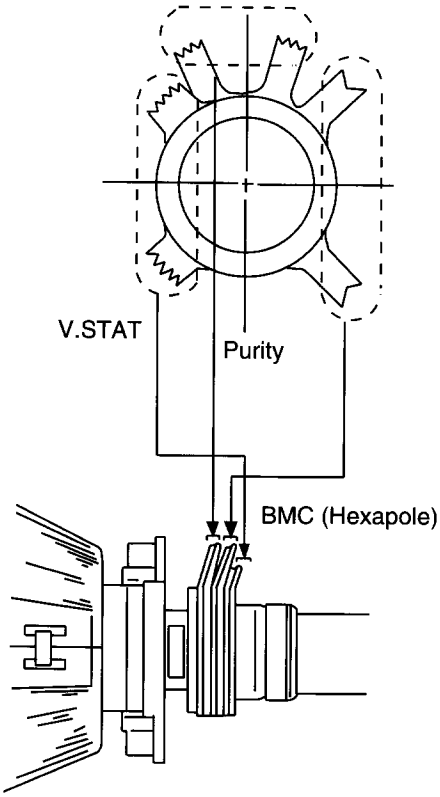


4. If the V.STAT magnet is moved in the direction of the (a) and (b) arrows, the red, green, and blue points move as shown below.



- Operation of BMC (Hexapole) Magnet





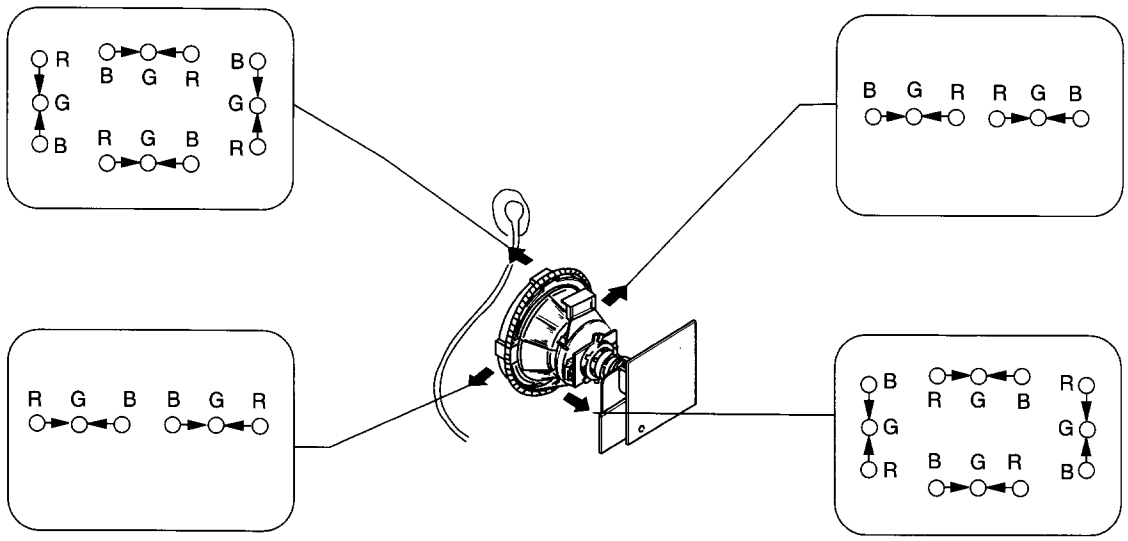
- The respective dot position resulting from moving each magnet interact, so be sure to perform adjustment while tracking.
  Use the H.STAT VR to adjust the red, green, and blue dots so they coincide at the centre of the screen (by moving the dots in the horizontal direction).

(2) Dynamic convergence adjustment.

Preparation:

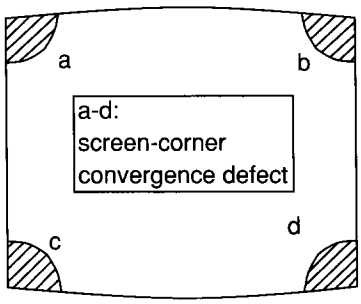
- Before starting this adjustment, adjust the horizontal static convergence and the vertical static convergence.

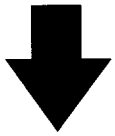
1. Slightly loosen the deflection yoke screws.
2. Remove the deflection yoke spacer.
3. Move the deflection yoke as shown in the figure below and optimize the convergence.
4. Tighten the deflection yoke screws.
5. Re-install the deflection yoke spacer.

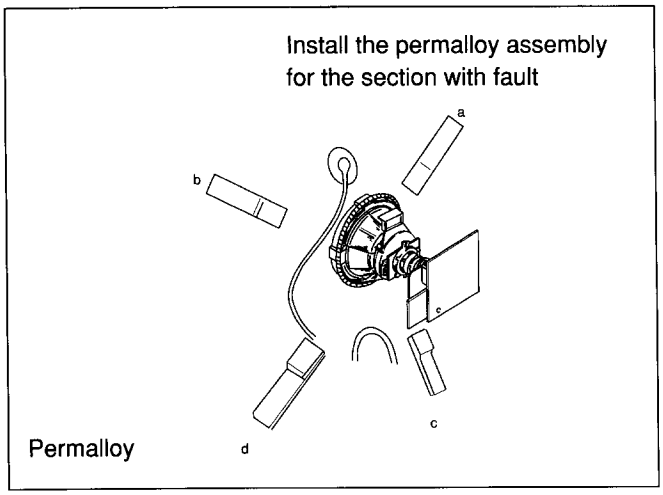


(3) Screen corner convergence.

If you are unable to adjust the corner convergence properly, correct them with the use of permalloy assemblies.







3-3. WHITE BALANCE

G2 Setting

1. Switch the set into AV mode (apply no signal to the AV connectors).
2. Connect a Volt Meter to Test Point 1 on the A board.
3. Adjust RV01 to obtain a voltage of 3.0V ±0.3V.

White balance adjustment

1. Input an all white signal from the pattern generator.
2. Enter into the service mode.
3. Enter into Picture Adjustment service menu.
4. Select sub-contrast and adjust to 7.
5. Select the Green Drive and adjust so that the white balance becomes optimum.
6. Select the Blue Drive and adjust so that the white balance becomes optimum.
7. Press the TV button to return to TV operation.

PICTURE ADJUSTMENT

AFC mode	1
REF position	2
SCP BGR	1
SCP BGF	1
Trap Fo	0
Sub contrast	Adj
Sub colour	Adj
Sub brightness	Adj
Sub hue	Adj
Green drive	Adj
Blue drive	Adj
Green cutoff	Adj
Blue cutoff	Adj
Gamma	0
Pre / overshoot	0
Y delay	3

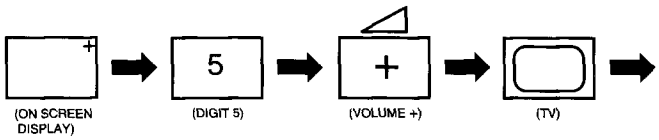
SECTION 4
CIRCUIT ADJUSTMENTS

4-1. ELECTRICAL ADJUSTMENTS

Service adjustment to this model can be performed with the supplied remote commander RM-862.

HOW TO ENTER INTO SERVICE MODE

1. Turn on the main power switch of the set and enter into standby mode.
2. Press the following sequence of buttons on the Remote Commander.



"TT-- " will appear in the top right corner of the screen. Other status information will also be displayed.

3. Press MENU on the commander to obtain the following menu on the screen.

TEST MENU

> Picture adjustment
Geometry
Wide
MSP
IC status
Current TV status

4. Move to the corresponding adjustment using the ◇ button on the commander.
5. Move the button to the right ◇ to enter the selected adjustment.
6. Turn off the power to quit the service mode when adjustments are completed.

PICTURE ADJUSTMENT

AFC mode	1
REF position	2
SCP BGR	1
SCP BGF	1
Trap Fo	0
Sub contrast	Adj
Sub colour	Adj
Sub brightness	Adj
Sub hue	Adj
Green drive	Adj
Blue drive	Adj
Green cutoff	Adj
Blue cutoff	Adj
Gamma	0
Pre / overshoot	0
Y delay	3

GEOMETRY ADJUSTMENT

V Size	Adj
V Position	Adj
S Correction	Adj
V Linearity	Adj
H Size	Adj
H Position	Adj
Pin Amp	Adj
Pin Phase	Adj
AFC Bow	Adj
AFC Angle	Adj
EHT V	Adj
EHT H	Adj
Corner Pin	Adj

WIDE

V Aspect	47
V Scroll	31
Upper V Lin	0
Lower V Lin	0
Left Blanking	1
Right Blanking	11

MSP	
AGC ON/OFF	ON
Constant gain CDB	0
FM prescale FMP	36
Zwei mono-st WHI	36
Zwei st-mono WLO	18
Zwei mono-bi WMH	36
Zwei bi-mono WLO	18
Time zwei WML	41
Fawct limit	10
Fawct soll init FAW	12
Fawer tol	2
Nicam Err Max CCT	10
Nicam Err Min	0
Nicam Prescale NIP	97
Time Nicam	31
Carrier mute CRM	OFF
Audio clock ACO	HIZ
Scart prescale	25
Scart volume	64

IC STATUS (CXA2000 / CXA2040)	
CXA2000	
H lock	1
IKR	1
VNG	0
X-RAY	0
Colour system	3
CV1 Sync	1
CXA2040	
Sync sep	1
S1 mode pin	01
S2 mode pin	01
TUNER	
Tuner status	01101011

TV STATUS	
Text system	C TEXT/TV TEXT
Dolby	NO/YES
Text language set	WEST/EAST/RUSSIAN
Menu language set	WEST/EAST/RUSSIAN
Destination	B/D/U/K/L/E/A/R
Scart 16:9	OFF/ON
RGB priority	OFF/ON
Ageing	OFF/ON
Size	29/25
Colour trap sw	SECAM/ALL
Velocity mod	ON/OFF
AFT STATUS	WINDOW/HIGH/LOW

SUB BRIGHTNESS ADJUSTMENT

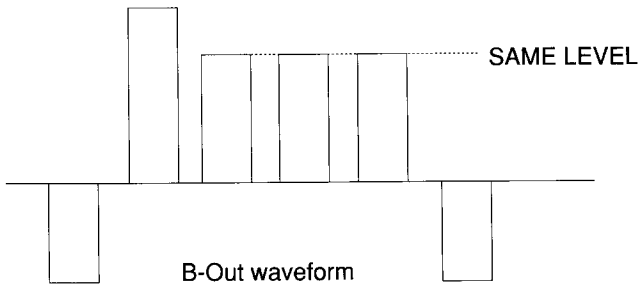
1. Input a Phillips pattern.
2. Set the picture control to minimum.
3. Enter into the Picture Adjustment Service Menu.
4. Adjust the Sub-Brightness data so that there is barely a difference between the 0 IRE and 10 IRE signal.

SUB CONTRAST ADJUSTMENT

1. Input a video that contains a small 100% area on a black background.
2. Set the picture control to maximum.
3. Connect an oscilloscope to pin 3 of CN301 (A board).
4. Enter into the Picture Adjustment Service Menu.
5. Adjust the Sub-contrast data to obtain a black to white amplitude of 2.50 volts.

SUB COLOUR ADJUSTMENT

1. Receive a PAL Colour Bar video signal.
2. Connect an oscilloscope to pin 3 of CN301 (A board).
3. Enter into the Picture Adjustment Service Menu.
4. Adjust the sub colour data so that cyan, magenta and blue colour bars are of equal height.



NOTE: The data shown in the TV STATUS table is dependant on destination, screen size and country.

SYSTEM B/G, D/K, I & L I.F ADJUSTMENT

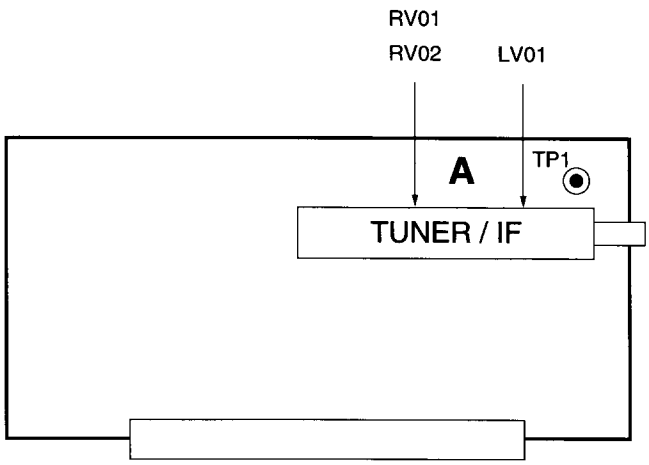
1. Input an off air signal of between 60-100dBuV / 75 ohm terminated, via the tuner socket.
2. Enter into the I.F adjustment service mode (i.e. " TT 59 ") to fix the I.F frequency to 38.9 MHz.
3. Enter into the service mode and select "Current TVStatus".
4. Adjust the I.F coil (LV01) until the "AFT Status" indicates a " Window " condition.

SYSTEM L BAND 1 I.F ADJUSTMENT

1. Input an off air signal of between 60-100dBuV / 75 ohm terminated, via the tuner socket.
2. Enter into the I.F adjustment service mode (i.e. " TT 59 ") to fix the I.F frequency to 34.2 MHz.
3. Enter into the service mode and select "Current TVStatus".
4. Adjust the RV02 until the "AFT Status" indicates a " Window " condition.

TUNER AGC ADJUSTMENT

1. Receive a signal of 63dBuV / 75 ohm terminated via the tuner socket.
2. Measure the voltage at test point 1 (A board).
3. Adjust RV01 to obtain a voltage of 3.0V ± 0.3V.



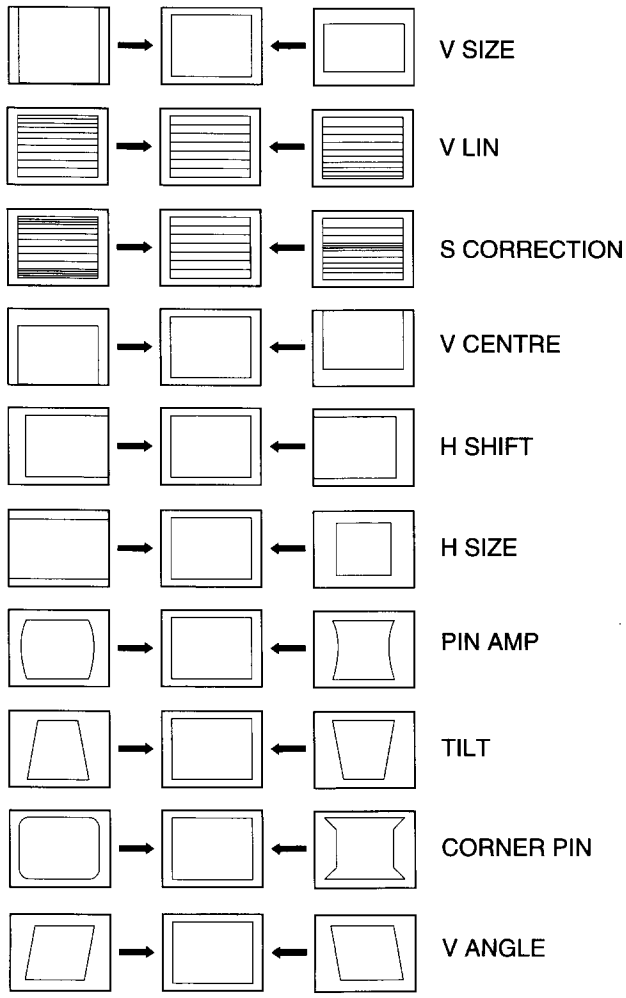
- A Board component side -

DEFLECTION SYSTEM ADJUSTMENT

1. Enter into the Geometry Adjustment Service Menu.
2. Select and adjust each item in order to obtain the optimum image.

GEOMETRY ADJUSTMENT

V Size	Adj
V Position	Adj
S Correction	Adj
V Linearity	Adj
H Size	Adj
H Position	Adj
Pin Amp	Adj
Pin Phase	Adj
AFC Bow	Adj
AFC Angle	Adj
EHT V	Adj
EHT H	Adj
Corner Pin	Adj



4-2. TEST MODE 2:

Is available by pressing Test button twice, OSD " TT " appears. The functions described below are available by pressing the two numbers. To release the Test mode 2, press 0 twice, or switch the TV into stand-by mode.

00	Switch test mode 2 off
01	Picture maximum
02	Picture minimum
03	Volume 30%
04	Set service menu mode
05	Set production menu mode
06	Volume 80%
07	Set ageing condition
08	Set shipping condition
09	Language reset
10	No function
11	Adjustment without OSD
12	Dummy
13	Display TV configuration
14	Forced AV 6:9 mode
15	Reset LPM from ROM data
16	copy LPM to reset memory
17	Preset label for AV sources
18	RGB priority on/off
19	Clear all preset labels
20	No function
21	Sub contrast
22	Sub colour
23	Sub brightness
24	Set destination = U
25	Set destination = D
26	Set destination = B
27	Set destination = K
28	Set destination = L
29	Set destination = E
30	No function
31	Set destination =A
32	Dummy
33	Auto AGC
34	Dummy
35	Manual AGC adjust

36-40	Dummy
41	Re-initialise NVM
42	Production use only
43	Initialise geometry settings
44	Initialise all favourite pages = 100
45	Channel locks = off
46	Dealer commander mode
47	Default MSP settings
48	Restore NVM test byte
49	Delete NVM test byte
50-60	No function
61	Turn on Dolby Pro Logic mode
62	White noise to left speaker
63	White noise to right speaker
64	White noise to centre speaker
65	White noise to rear speaker
66	Set standard stereo mode
67	Set Pro Logic normal mode
68	Set Pro Logic wide mode
69	Set Pro Logic phantom mode
70	No function
71	Picture rotation on/off
72	Dolby register settings
74	No function
75	Reset picture colour balance
76	Reset picture geometry
77	Reset sound settings
78	Reset error codes in the NVM
79-99	No function

4-3. BE-3D SELF DIAGNOSTIC SOFTWARE

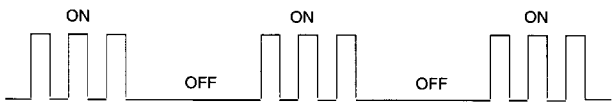
The identification of errors within the BE-3D chassis is triggered in 1 of 2 ways :- 1: Bus busy or 2: Device failure to respond to IIC. In the event of one of these situations arising the software will first try to release the bus if busy (Failure to do so will report with continuous flashing LED) and then communicate with each device in turn to establish if a device is faulty. If a device is found to be faulty the relevant device number will be displayed through the led (Series of flashes which must be counted) See Table 1, non fatal errors are reported with this method.

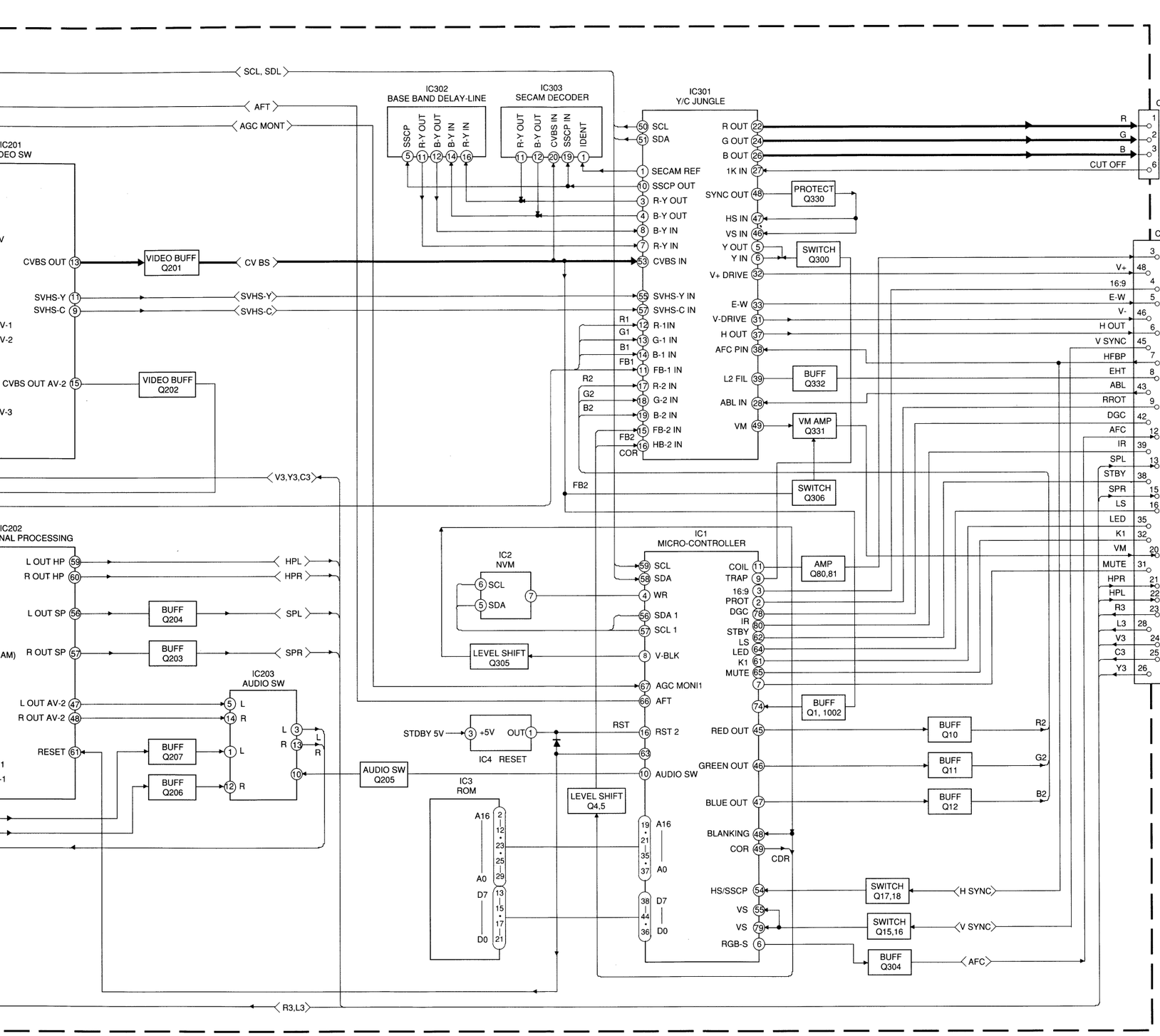
Table 1

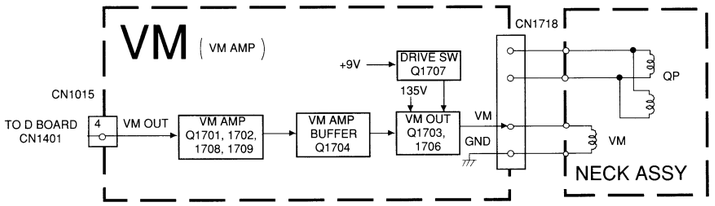
ERROR	LED ERROR COUNT
Protection circuit trip < ANY TIME >	02
IIC SCL LOW < POWER UP ONLY >	03
IIC SDA LOW < POWER UP ONLY >	04
IIC SDA & SCL LOW < POWER UP ONLY >	05
Jungle/Choroma controller no acknowledge < POWER UP ONLY >	06
Video Switch no acknowledge < POWER UP ONLY >	07
Tuner no acknowledge	08
MSP no acknowledge	09
NVM no acknowledge	10
M3L TXD LOW < POWER UP ONLY >	11
M3L RXD LOW < POWER UP ONLY >	12
M3L ENABLE LOW < POWER UP ONLY >	13
M3L TXD & RXD LOW < POWER UP ONLY >	14
Compact Text test fail < POWER UP ONLY >	15
AV switch cannot power on reset	16
Cannot initialise jungle	17
NVM acknowledge fail after initialisation	18
Multiple devices with no acknowledge < POWER UP ONLY >	19
Compacttext run-time failure	20
AVSWITCH response failure after power up	21
JUNGLE/CHROMA controller response failure after power up	22
CompactText does not respond	23

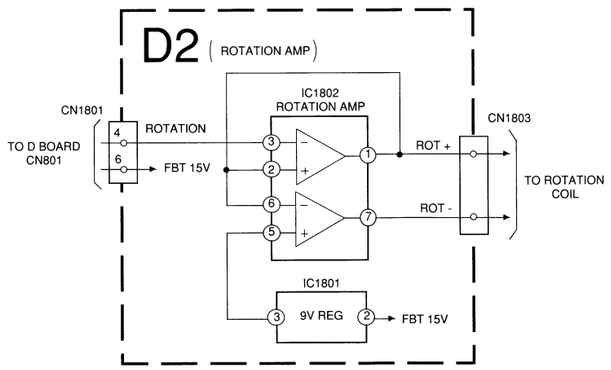
Flash Timing Example : e.g. error number 3.

Stby LED

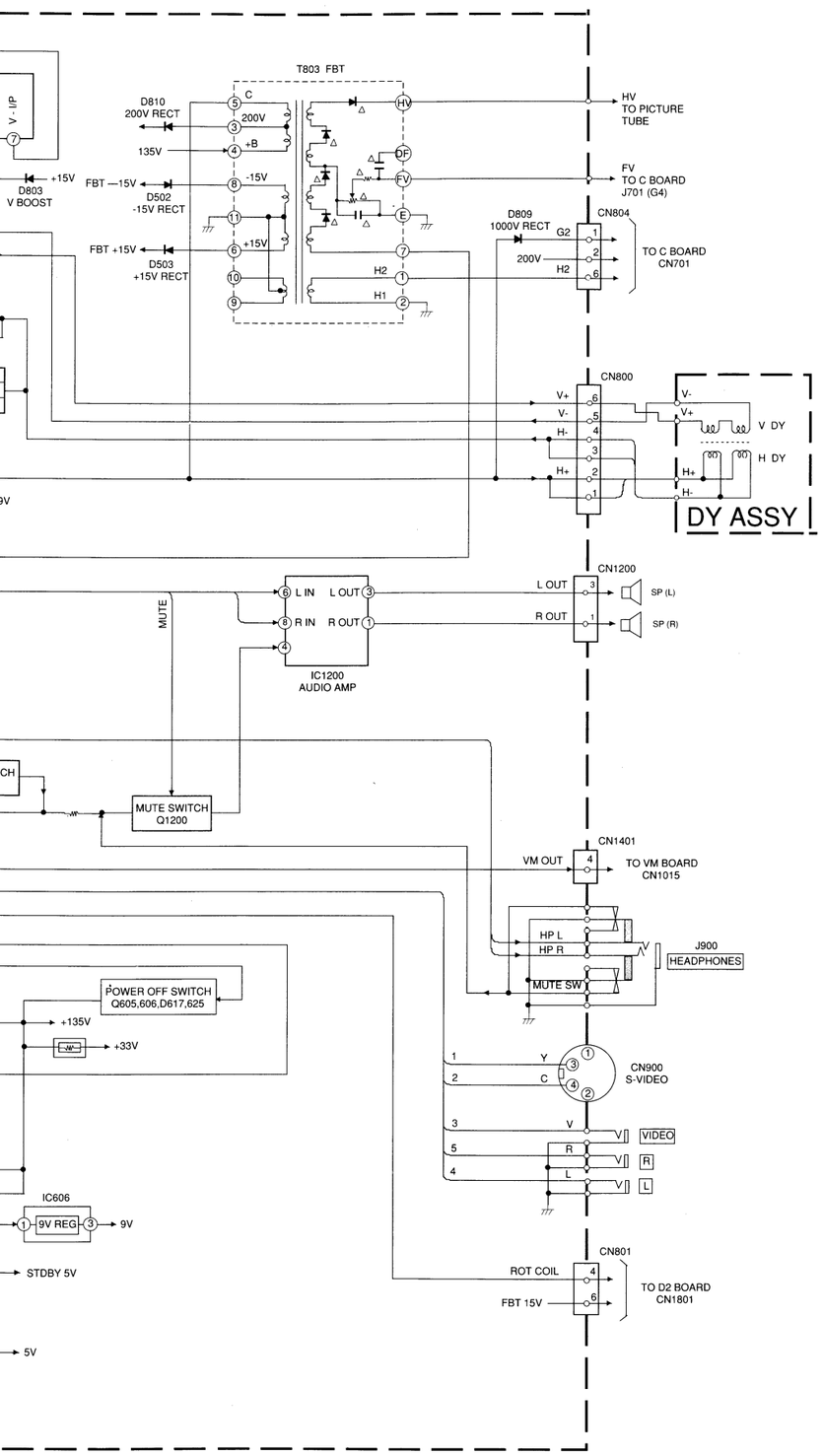


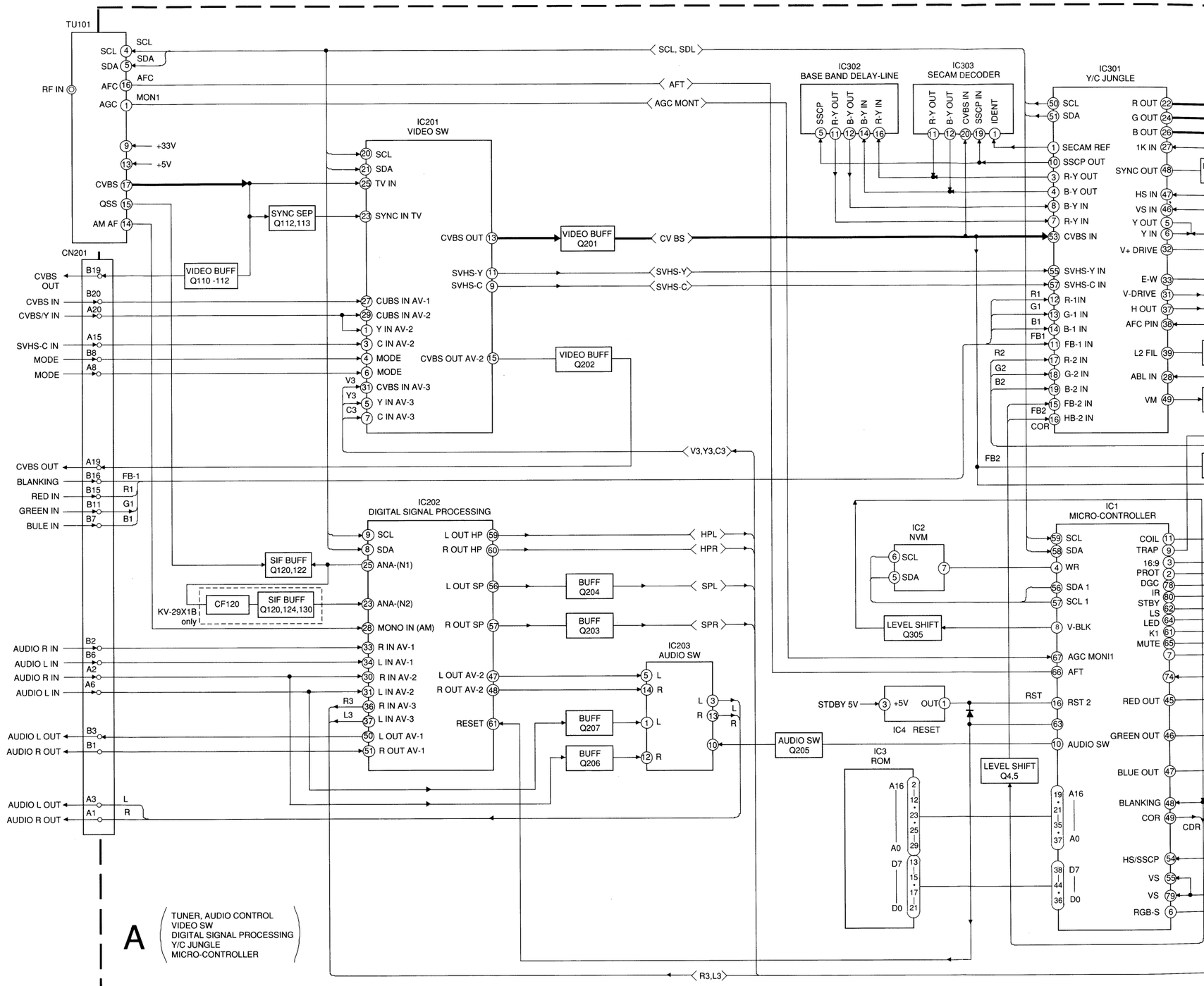

SCL, SDL
AFT
AGC MONT
IC201
DEO SW
IC302
BASE BAND DELAY-LINE
SSCP
R-Y OUT
B-Y OUT
B-Y IN
R-Y IN
IC303
SECAM DECODER
R-Y OUT
B-Y OUT
CVBS IN
SSCP IN
IDENT
IC301
Y/C JUNGLE
SCL
SDA
SECAM REF
SSCP OUT
R-Y OUT
B-Y OUT
B-Y IN
R-Y IN
CVBS IN
SVHS-Y IN
SVHS-C IN
R-1IN
G-1 IN
B-1 IN
FB-1 IN
R-2 IN
G-2 IN
B-2 IN
FB-2 IN
HB-2 IN
COR
R OUT
G OUT
B OUT
1K IN
SYNC OUT
HS IN
VS IN
Y OUT
Y IN
V+ DRIVE
E-W
V-DRIVE
H OUT
AFC PIN
L2 FIL
ABL IN
VM
CVBS OUT
VIDEO BUFF Q201
CV BS
SVHS-Y
SVHS-C
CVBS OUT AV-2
VIDEO BUFF Q202
V3,Y3,C3
PROTECT Q330
SWITCH Q300
BUFF Q332
VM AMP Q331
SWITCH Q306
FB2
IC1
MICRO-CONTROLLER
IC2
NVM
SCL
SDA
LEVEL SHIFT Q305
V-BLK
AGC MONI1
AFT
RST
RST 2
AUDIO SW
AUDIO SW Q205
LEVEL SHIFT Q4,5
IC3
ROM
A16
A0
D7
D0
IC4 RESET
STDBY 5V
+5V
OUT
COIL
TRAP
16:9
PROT
DGC
IR
STBY
LS
LED
K1
MUTE
AMP Q80,81
BUFF Q1, 1002
RED OUT
GREEN OUT
BLUE OUT
BLANKING
COR
CDR
HS/SSCP
VS
VS
RGB-S
BUFF Q10
BUFF Q11
BUFF Q12
R2
G2
B2
SWITCH Q17,18
SWITCH Q15,16
BUFF Q304
H SYNC
V SYNC
AFC
CN3
R
G
B
CUT OFF
CN1
ROTATION COIL
V+ DRIVE
16:9
EAST/WEST DRIVE
V—DRIVE
H DRIVE
V SYNC
H FLYBACK
EHT
ABL
PROTECTION
DGC RELAY
AFC
SIRCS
AUDIO OUT SPEAKER
CHASSIS STANDBY
AUDIO R OUT SPEAKER
LUMISPONDER
STANDBY LED
FRONT KEY 1
VM
AUDIO MUTE
AUDIO R OUT HP
AUDIO L OUT HP
AUDIO R IN AV-3
AUDIO L IN AV-3
CVBS IN AV-3
S-VHS C IN AV-3
S-VHS Y IN AV-3
TO D BOARD CN902
L OUT HP
R OUT HP
L OUT SP
R OUT SP
HPL
HPR
SPL
SPR
BUFF Q204
BUFF Q203
IC203
AUDIO SW
L OUT AV-2
R OUT AV-2
RESET
BUFF Q207
BUFF Q206
R3,L3
CN703
R DRIVE, BKG Q702, 703
R OUT Q704
G DRIVE, BKG Q705, 706
G OUT Q707
B DRIVE, BKG Q708, 709
B OUT Q710
CUT OFF Q711
D701
V901
PICTURE TUBE
H RCV G2 G4 HV
TO D BOARD CN804
G2
+ 200V
H2
H1
D711 PROTECT
RCV
RV702 H STAT
RV701 SCREEN
G2 (1000V)
CN701
C (RGB OUT)
TO D BOARD T803 (FBT)


VM (VM AMP)
CN1718
CN1015
TO D BOARD CN1401
VM OUT
VM AMP Q1701, 1702, 1708, 1709
VM AMP BUFFER Q1704
+9V
DRIVE SW Q1707
135V
VM OUT Q1703, 1706
VM
GND
QP
NECK ASSY


D2 (ROTATION AMP)
IC1802
ROTATION AMP
CN1801
TO D BOARD CN801
ROTATION
FBT 15V
ROT +
ROT -
CN1803
TO ROTATION COIL
IC1801
9V REG
FBT 15V

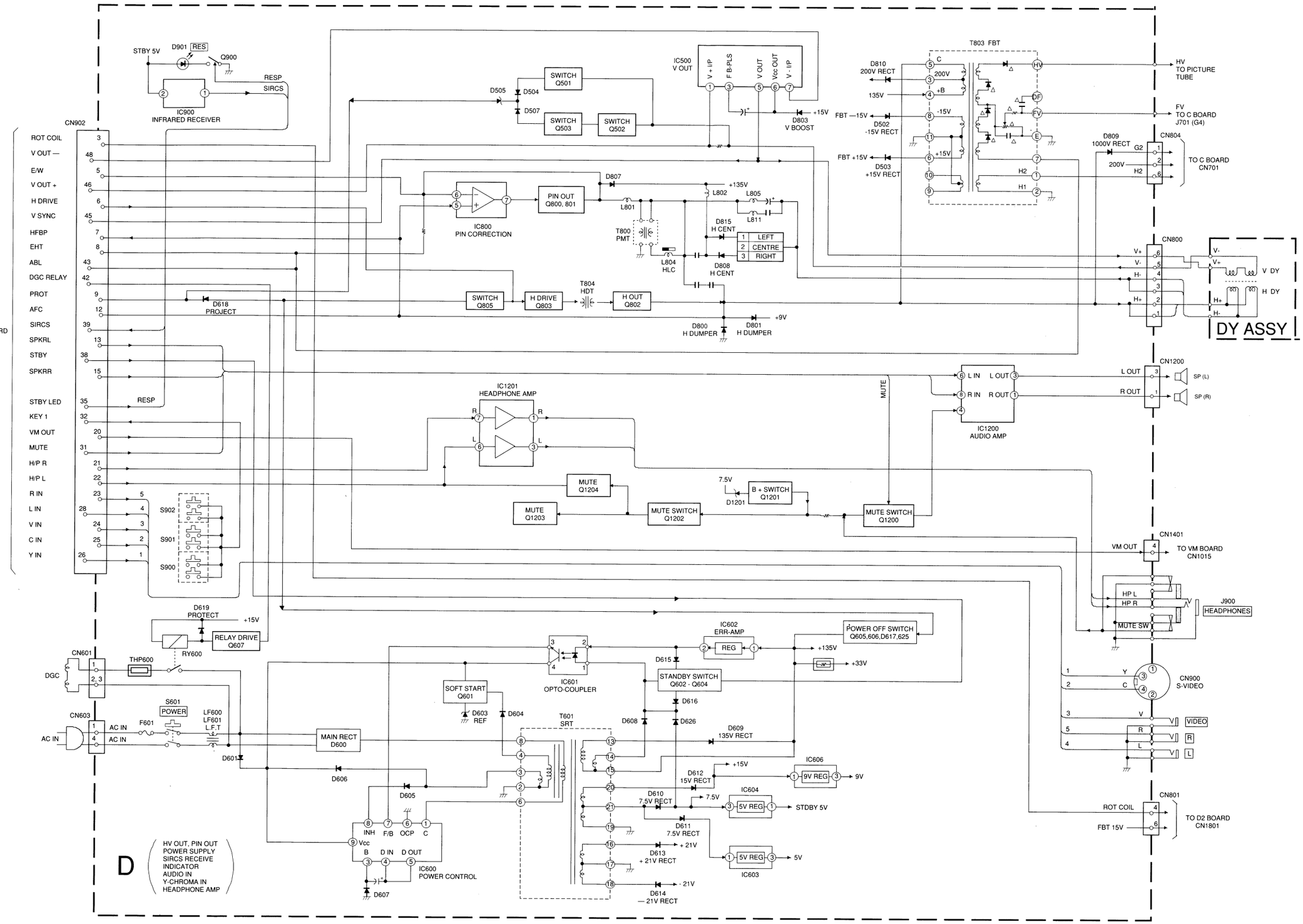
BLOCK DIAGRAM (2)



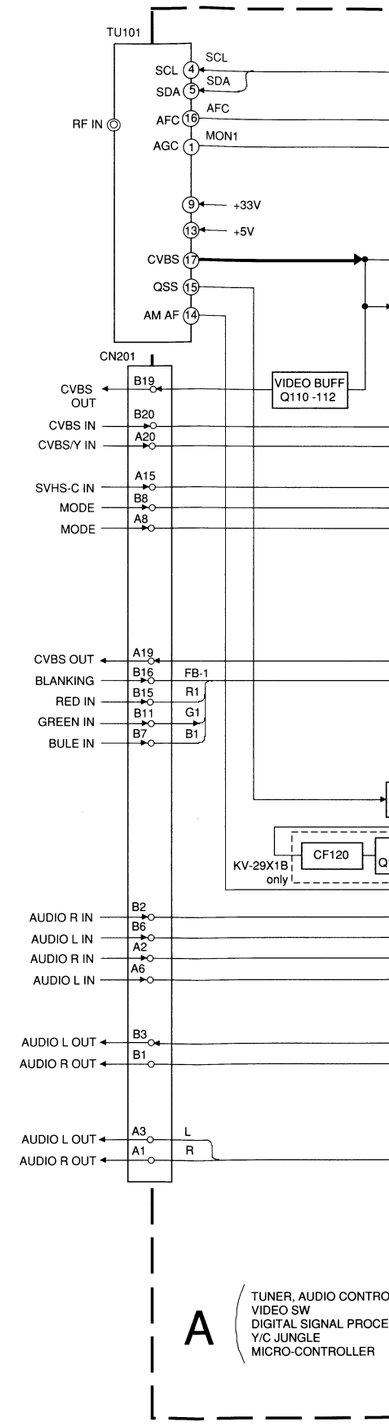


SECTION 5
DIAGRAMS

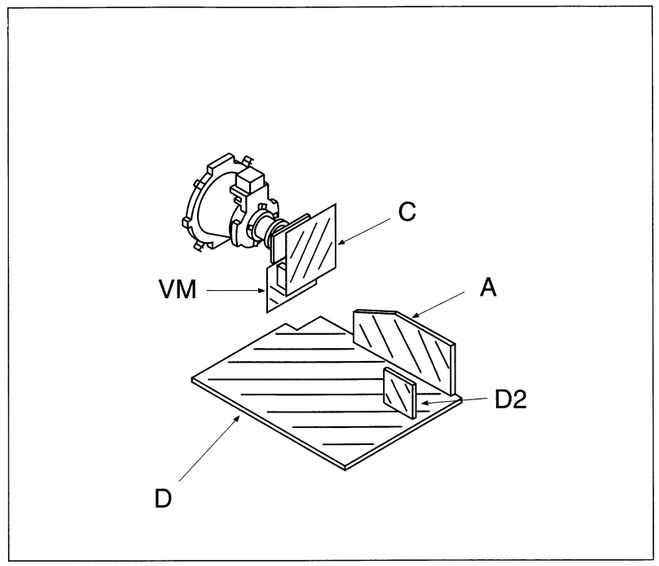
5-1. BLOCK DIAGRAM (1)



BLOCK DIAGRAM (



5-2. CIRCUIT BOARDS LOCATION



5-3. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

Note :

- All capacitors are in µF unless otherwise noted. pF: µµF 50WV or less are not indicated except for electrolytic and tantalums.
- All resistors are in ohms.
  k = 1000 , M = 1000K
- Indication of resistance, which does not have one for rating electrical power, is as follows.

Pitch : 5 mm Rating electrical power ¼ W

- : nonflammable resistor.
- : internal component.
- : panel designation, or adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ⊥ : earth - ground.
- ⏚ : earth - chassis.
- # : no mounted.

Note : The components identified by shading and marked ⚠ are critical for safety. Replace only with the part number specified.

Note : Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite.
Ne les remplacer que par une piece portant le numero specifie.

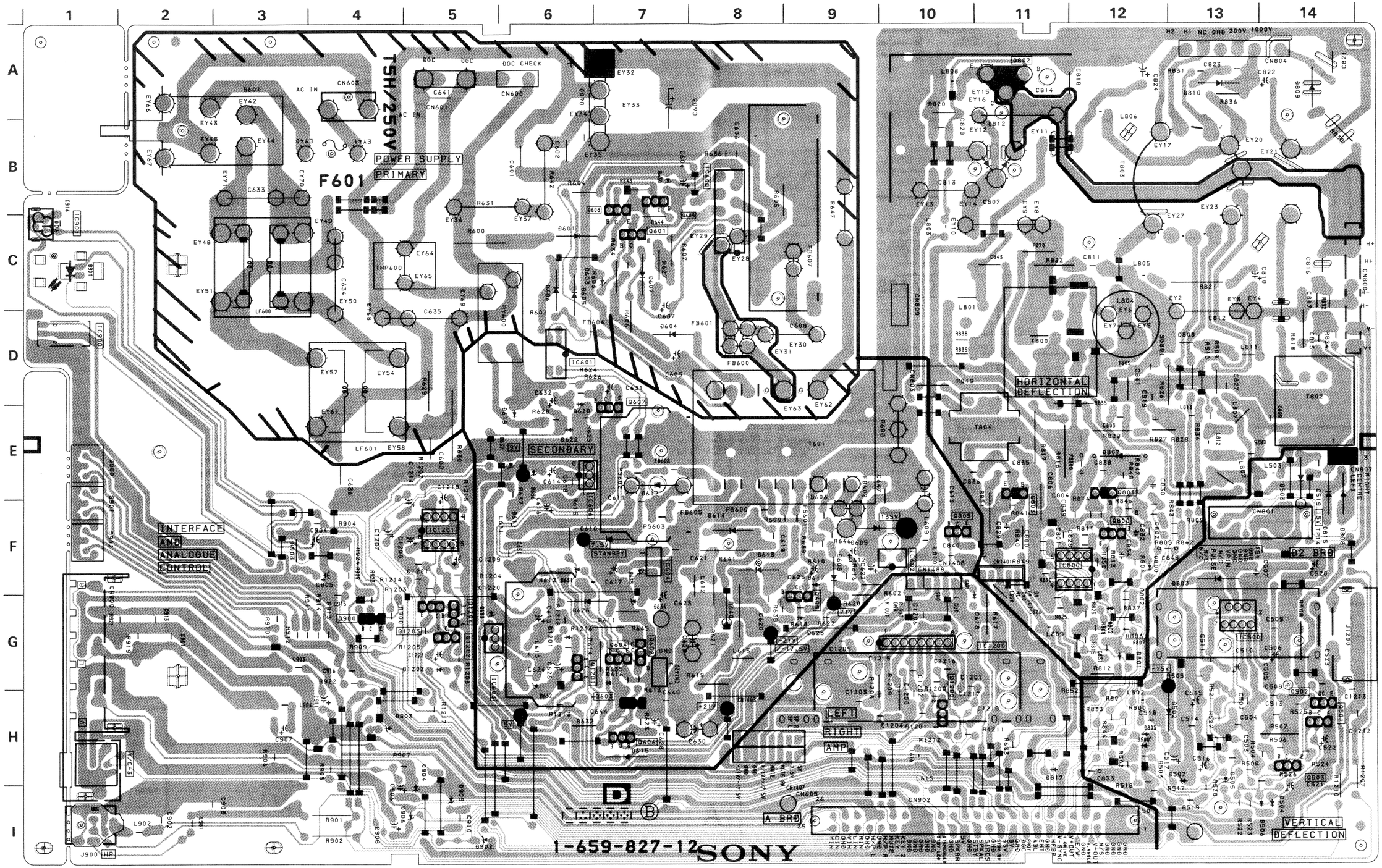
Reference information

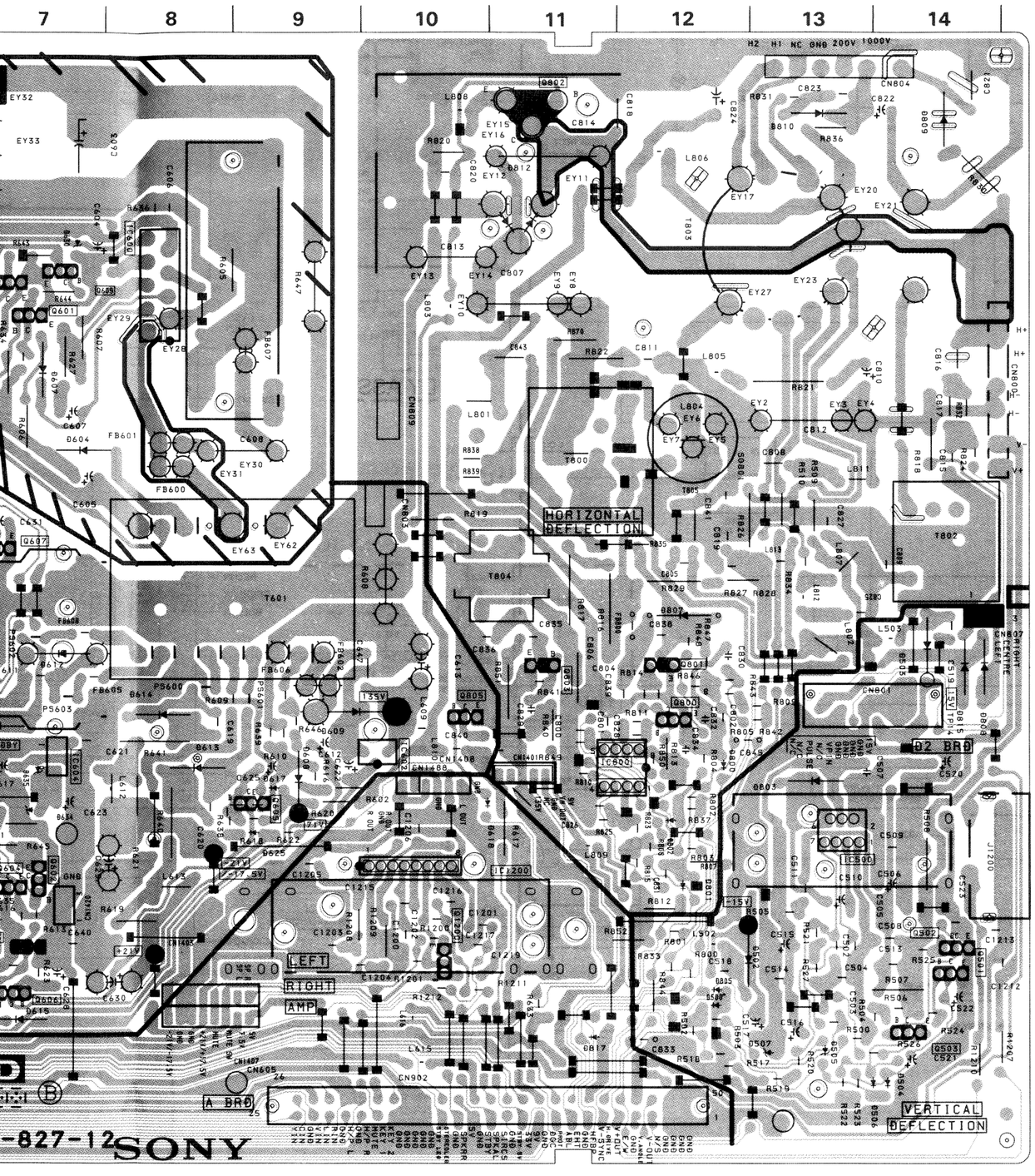
RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NONFLAMMABLE CARBON
	: FUSE	NONFLAMMABLE FUSIBLE
	: RS	NONFLAMMABLE METAL OXIDE
	: RB	NONFLAMMABLE CEMENT
	: RW	NONFLAMMABLE WIREWOUND
	: ※	ADJUSTABLE RESISTOR
COIL	: LF-8L	MICRO INDUCTOR
CAPACITOR	: TA	TANTALUM
	: PS	STYROL
	: PP	POLYPROPYLENE
	: PT	MYLAR
	: MPS	METALIZED POLYESTER
	: MPP	METALIZED POLYPROPYLENE
	: ALB	BIPOLAR
	: ALT	HIGH TEMPERATURE
	: ALR	HIGH RIPPLE

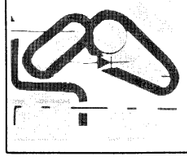
- Readings are taken with a colour-bar signal input.
- Readings are taken with 10MΩ digital multimeter.
- Voltages are dc with respect to ground unless otherwise noted.
- Voltage variations may be noted due to normal production tolerances.
- All voltages are in V.
- Circled numbers are waveform references.
- : B+ bus.
- : signal path. (RF)

D [HV OUT, PIN OUT, POWER SUPPLY, CONTROL SW, AUDIO IN
Y-CHROMA IN, HEADPHONE IN, SIRCS RECEIVE, INDICAITON]

D Board



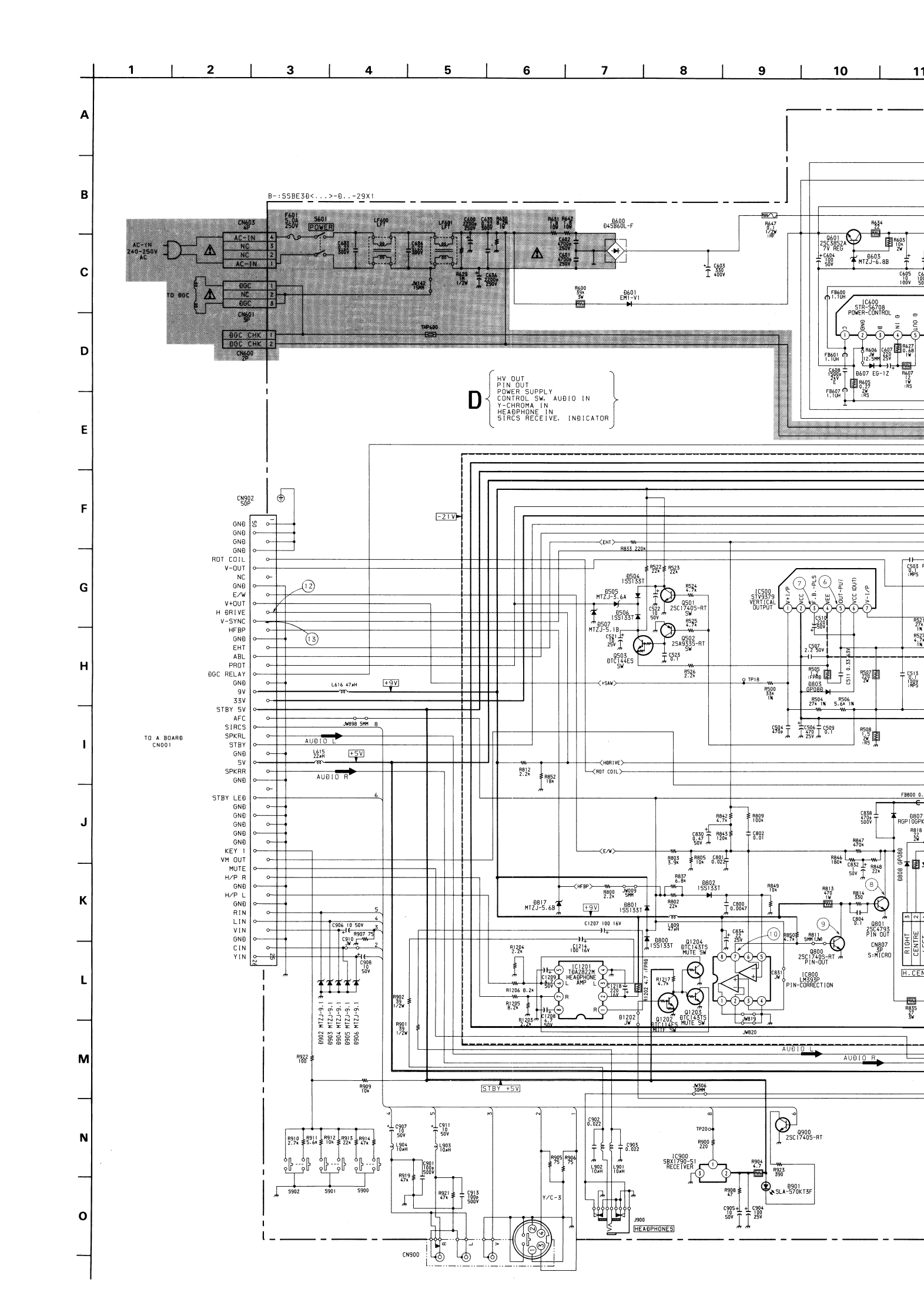


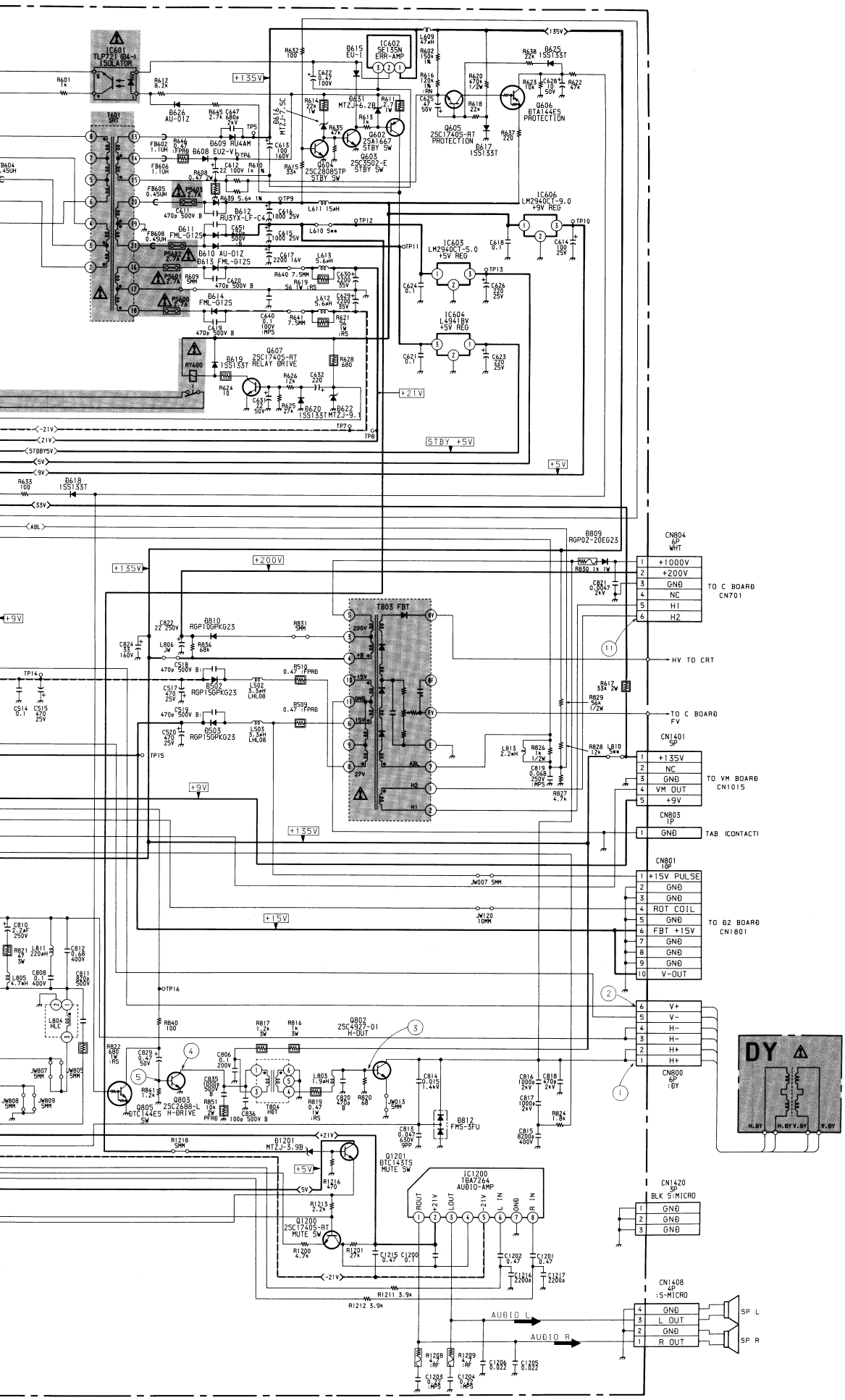


NOTE:
The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.

D BOARD

IC		DIODE	
IC500	G-13	D600	A-7
IC600	B-8	D601	C-6
IC601	D-6	D603	C-7
IC602	F-10	D604	D-7
IC603	G-5	D605	C-6
IC604	F-7	D606	C-6
IC606	E-6	D607	C-7
IC800	F-12	D608	F-9
IC900	D-1	D609	F-9
IC1200	G-10	D610	F-7
IC1201	F-5	D611	F-6
		D612	E-7
TRANSISTOR		D613	F-8
Q501	H-14	D614	F-8
Q502	H-14	D615	H-7
Q503	H-14	D616	G-7
Q601	C-7	D617	F-9
Q602	G-7	D618	F-11
Q603	H-7	D619	E-6
Q604	G-7	D620	E-6
Q605	F-9	D622	E-6
Q606	H-7	D625	G-9
Q607	D-7	D626	G-6
Q800	F-12	D631	F-6
Q801	E-12	D800	F-12
Q802	A-11	D801	G-12
Q803	E-11	D802	G-12
Q805	F-10	D803	F-13
Q900	G-4	D807	E-12
Q1200	H-10	D808	E-14
Q1201	G-6	D809	A-14
Q1202	G-5	D810	A-13
Q1203	G-5	D812	B-11
Q1204	G-5	D815	E-14
DIODE		D817	H-11
D500	H-12	D901	C-1
D502	H-13	D902	I-5
D503	I-14	D903	H-4
D504	H-11	D904	H-5
D505	H-13	D905	I-5
D506	I-14	D906	I-5
D507	H-13	D1201	G-6


B-:SSBE3Ø<...>-Ø..-29X!
AC-IN 240-250V AC
CN603 4P
AC-IN
NC
NC
AC-IN
F601 3.0A 250V
S601 POWER
LF600 LF1
LF601 LF1
D600 D4SB60L-F
C605 330 400V
TO ØGC
ØGC
NC
ØGC
CN601 3P
ØGC CHK
ØGC CHK
CN600 2P
THP600
R600 39k 5W
D601 EM1-V1
Q601 2SC3852A 7V REG
D603 MTZJ-6.8B
IC600 STR-S6708 POWER-CONTROL
D607 EG-1Z
D
HV OUT
PIN OUT
POWER SUPPLY
CONTROL SW. AUDIO IN
Y-CHROMA IN
HEADPHONE IN
SIRCS RECEIVE. INDICATOR
CN902 50P
TO A BOARD CN001
-21V
+9V
+5V
+SAW
EHT
HDRIVE
ROT COIL
E/W
HFBP
AUDIO L
AUDIO R
STBY +5V
IC500 STV9379 VERTICAL OUTPUT
IC1201 TDA2822M HEADPHONE AMP
IC800 LM393P PIN-CORRECTION
Q800 2SC1740S-RT PIN-OUT
Q900 2SC1740S-RT
IC900 SBX1790-51 RECEIVER
D901 SLA-570KT3F
CN807 3P S-MICRO
H.CENTER
RIGHT
CENTRE
CN900
J900 HEADPHONES
S902
S901
S900
Y/C-3

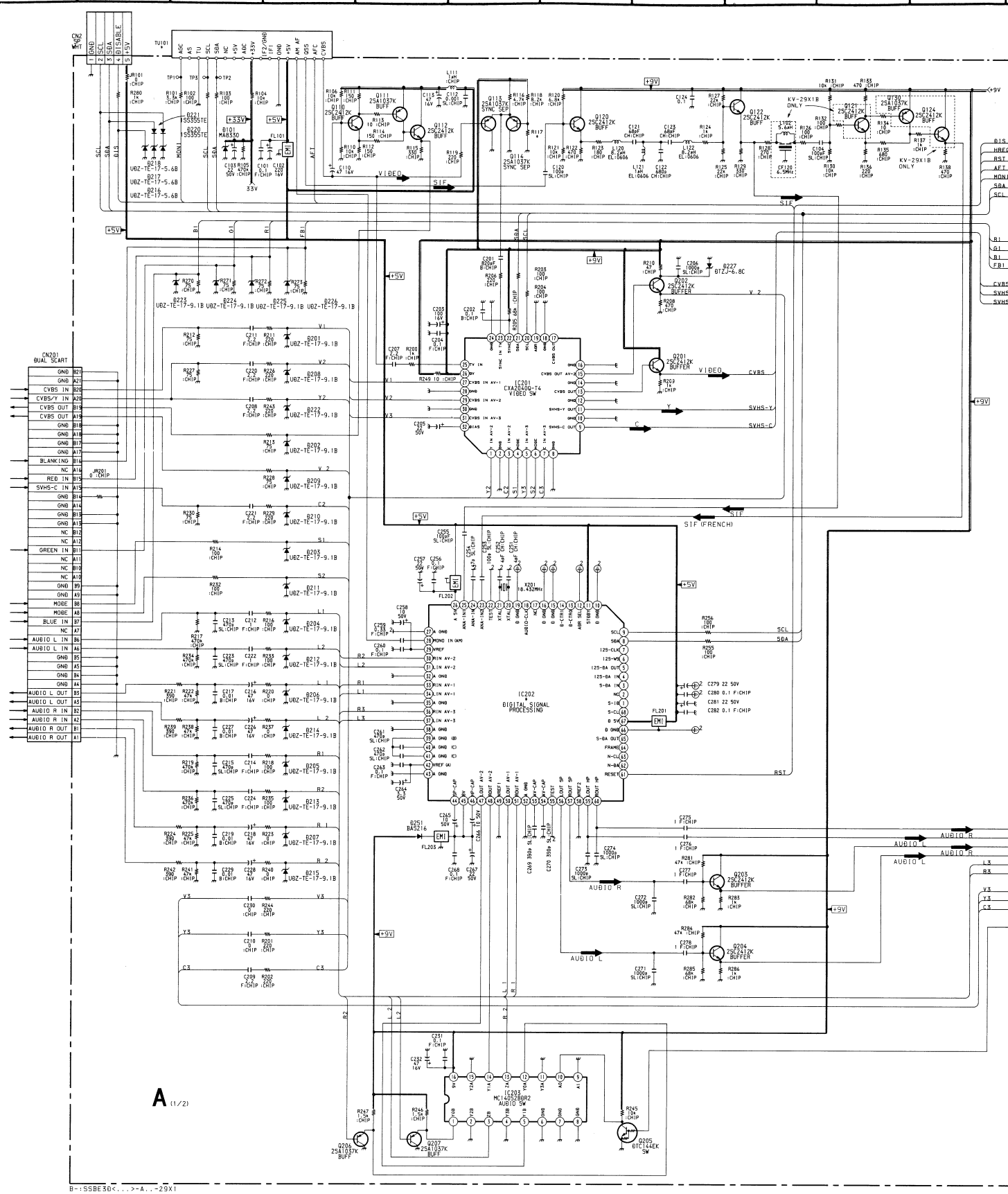

IC401 TLP721 (D4-) ISOLATOR
T601 SMT
IC602 SE135N ERR-AMP
Q605 2SC17405-RT PROTECTION
Q606 BTA144GS PROTECTION
Q607 2SC1740S-RT RELAY DRIVE
IC606 LM2940CT-9.0 +9V REG
IC603 LM2940CT-5.0 +5V REG
IC604 L4941BV +5V REG
RY600
+135V
+200V
+21V
-21V
+9V
+5V
STBY +5V
T803 FBT
CN804 6P WHT
+1000V
+200V
GND
NC
H1
H2
TO C BOARD CN701
HV TO CRT
TO C BOARD FV
CN1401 5P
+135V
NC
GND
VM OUT
+9V
TO VM BOARD CN1015
CN803 1P
GND
TAB (CONTACT)
CN801 10P
+15V PULSE
GND
GND
ROT COIL
GND
FBT +15V
GND
GND
GND
V-OUT
TO B2 BOARD CN1801
CN800 6P :DY
V+
V-
H-
H-
H+
H+
DY
H.DY
H.DY.V.DY
V.DY
IC1200 TBA7264 AUDIO-AMP
ROUT
+21V
LOUT
-21V
L IN
GND
R IN
CN1420 3P BLK S-MICRO
GND
GND
GND
CN1408 4P :S-MICRO
GND
L OUT
GND
R OUT
SP L
SP R
AUDIO L
AUDIO R

D BOARD
TRANSISTOR VOLTAGE TABLE

Transistor Voltage Table			
Ref No	B Base	C Collector	E Emitter
Q501	-0.1	0.2	-
Q502	0.1	-5.8	-
Q503	-5.8	-12.0	-12.0
Q602	72.0	7.5	72.7
Q603	0	72.0	-
Q604	0.7	-	-
Q605	0.5	-	0.3
Q606	-	-	12.0
Q607	-	12.0	-
Q800	0.2	3.1	-
Q801	0.3	17.0	-
Q802	-0.2	143.3	-
Q803	-0.6	99.8	-
Q805	-	3.6	-
Q900	-	5.4	-
Q1200	2.9	21.5	4.6
Q1201	3.4	5.0	3.0
Q1202	2.8	-	-

D BOARD IC VOLTAGE TABLE

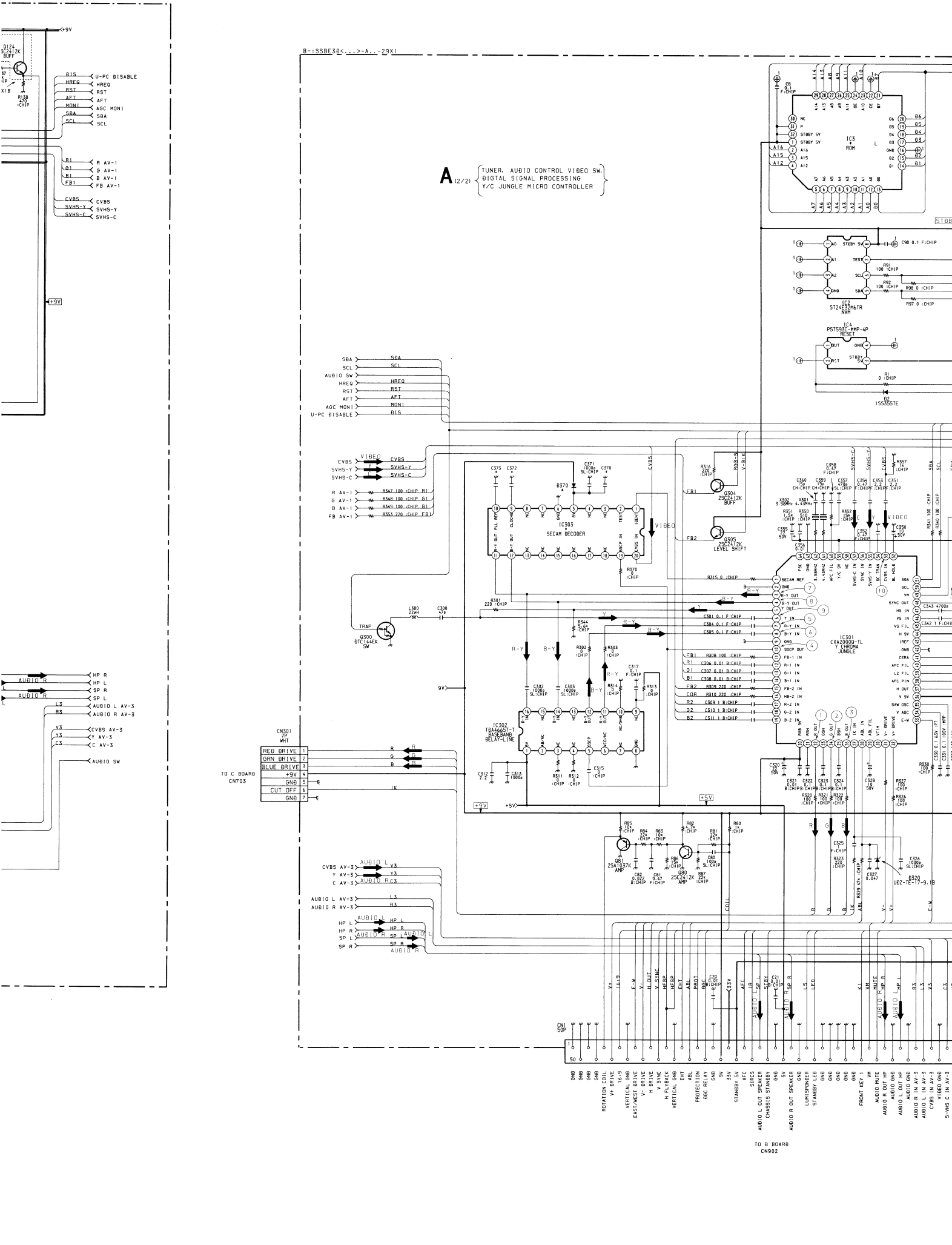
IC Voltage Table		
Ref No	Pin No	Voltage (V)
IC500	1	1.5
	2	15.0
	3	-12.3
	4	-14.0
	5	0.1
	6	15.2
	7	1.4
IC600	1	170.0
	2	-62.4
	3	-62.6
	4	-62.2
	5	-62.0
	6	-62.6
	7	-62.4
	8	-62.0
	9	-58.0
IC601	1	64.3
	2	63.0
	3	-62.5
	4	-58.6
IC602	1	135.0
	2	63.2
	3	-0.1
IC800	3	0.9
	5	1.5
	6	2.0
	7	0.2
	8	9.0
IC1200	2	21.7
	4	21.5
	5	-21.7
IC1201	1	4.0
	2	9.0
	3	4.0
	5	0.5
	8	0.5

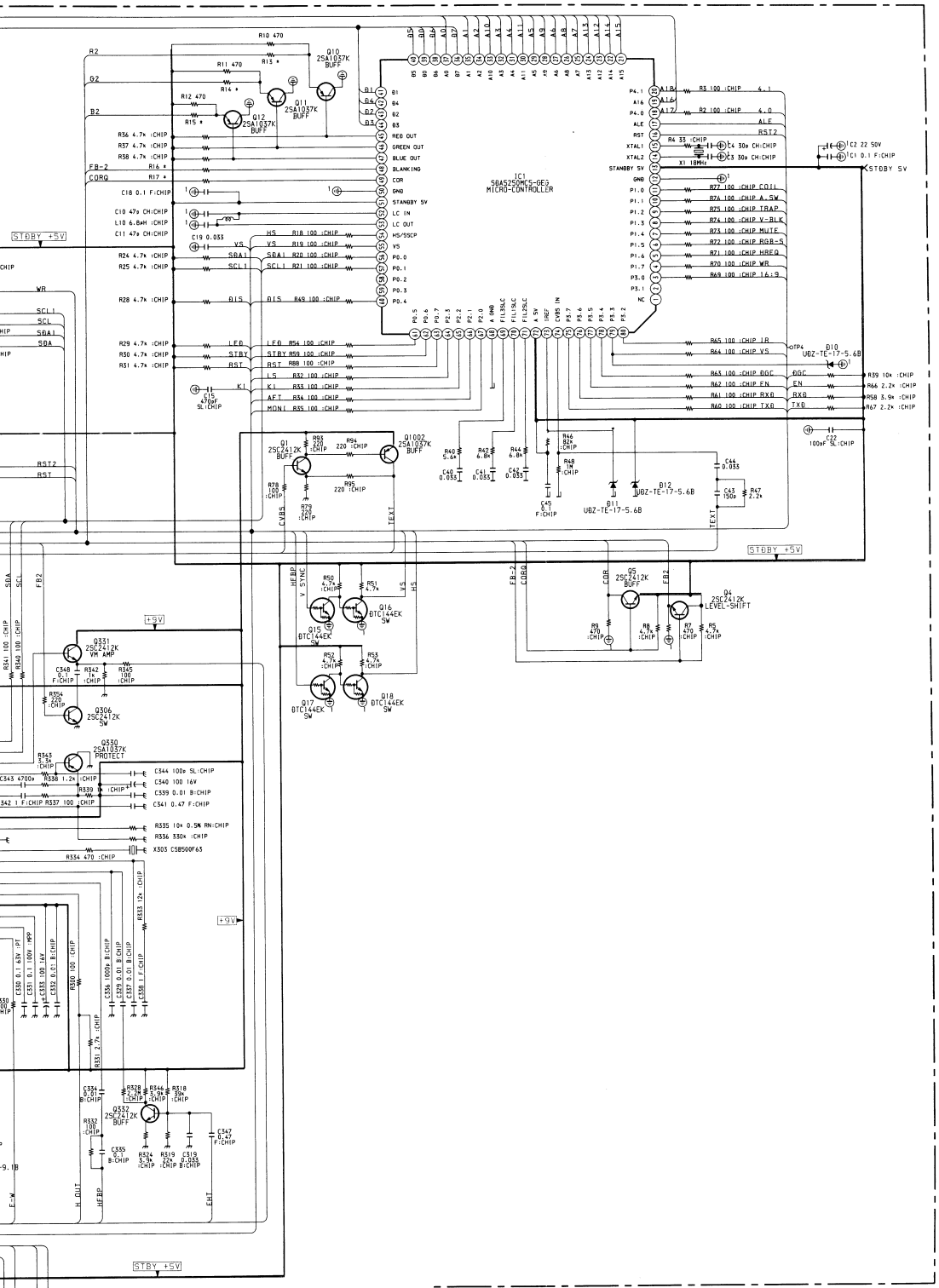


B-:SSBE3D<...>-A..-29X!

A BOARD * MARK

Ref. No. \ Model	29X1A	29X1B	29X1D	29X1E	29X1K	29X1L	29X1R	29X1U
C370	—	2.2UF	2.2UF	2.2UF	2.2UF	—	2.2UF	—
C372	—	0.1UF	0.1UF	0.1UF	0.1UF	—	0.1UF	—
C373	—	0.22UF	0.22UF	0.22UF	0.22UF	—	0.22UF	—
D370	—	BAS216	BAS216	BAS216	BAS216	—	BAS216	—
IC3	TMS27PC010A-15FMBE101	TMS27PC010A-15FMBE101	TMS27PC010A-15FMBE101	TMS27PC010A-15FMBW101	TMS27PC010A-15FMBE101	TMS27PC010A-15FMBW101	TMS27PC010A-15FML	TMS27PC010A-15FMBW101
IC202	MSP3410-PS	MSP3410-15	MSP3400C-PS	MSP3410-15	MSP3400C-PS	MSP3410-15	MSP3400C-PS	MSP3410-15
IC303	—	TDA8395T	TDA8395T	TDA8395T	TDA8395T	—	TDA8395T	—
R13	150	—	150	150	150	150	150	150
R14	150	—	150	150	150	150	150	150
R15	150	—	150	150	150	150	150	150
R16	100	—	100	100	100	100	100	100
R17	100	—	100	100	100	100	100	100
R117	1.8K	1.8K	1.8K	1.8K	1.8K	1.8K	1.8K	2.0K
TU101	TUVIF (AEP)	TUVIF (FR)	TUVIF (AEP)	TUVIF (AEP)	TUVIF (AEP)	TUVIF (AEP)	TUVIF (AEP)	TUVIF (UK)


A (2/2) TUNER, AUDIO CONTROL VIDEO SW.
DIGTAL SIGNAL PROCESSING
Y/C JUNGLE MICRO CONTROLLER
IC303 SECAM DECODER
IC301 CXA2000Q-TL Y CHROMA JUNGLE
IC302 TBA4665T-T BASEBAND DELAY-LINE
IC3 ROM
IC2 ST24E32M6TR NVM
IC4 PST593C-MMP-4P RESET
Q304 2SC2412K BUFF
Q305 2SC2412K LEVEL SHIFT
Q300 BTC144EK SW
Q81 2SA1037K AMP
Q80 2SC2412K AMP
TRAP
CN301 7P WHT
TO C BOARD CN703
TO B BOARD CN902
CN1 50P
SDA
SCL
AUDIO SW
HREQ
RST
AFT
AGC MONI
U-PC BISABLE
CVBS
SVHS-Y
SVHS-C
R AV-1
G AV-1
B AV-1
FB AV-1
HP R
HP L
SP R
SP L
AUDIO L AV-3
AUDIO R AV-3
CVBS AV-3
Y AV-3
C AV-3
AUDIO SW
RED DRIVE
GRN DRIVE
BLUE DRIVE
+9V
GND
CUT OFF
ROTATION COIL
VERTICAL LOAD
EAST/WEST DRIVE
H DRIVE
V SYNC
H FLYBACK
VERTICAL GND
EHT
ABL
PROTECTION
BDC RELAY
STANDBY 5V
AFC
SIRCS
AUDIO L OUT SPEAKER
CHASSIS STANDBY
AUDIO R OUT SPEAKER
LUMISPONDER
STANBBY LED
FRONT KEY 1
AUDIO MUTE
AUDIO R OUT HP
AUDIO L OUT HP
AUDIO GND
AUDIO L IN AV-3
AUDIO R IN AV-3
CVBS IN AV-3
VIDEO GND
S-VHS C IN AV-3
UDZ-TE-17-9.1B



A (1/2) BOARD IC VOLTAGE TABLE

IC Voltage Table		
Ref No	Pin No	Voltage (V)
IC201	13	4.4
	15	4.4
	20	3.5
	21	2.7
	22	4.9
	23	4.4
	24	0
	25	4.4
	26	8.8
	32	4.4
IC202	4	2.8
	6-7	0.1
	8	3.0
	9	3.6
	11	4.7
	13	4.7
	20-21	2.4
	23	0.2
	25	1.5
	26	4.8
	28	3.8
	29	2.6
	39-42	3.8
	44	7.1
	45	8.0
	46	7.1
	47-48	3.8
	53-54	3.8

A (2/2) BOARD TRANSISTOR VOLTAGE TABLE

Transistor Voltage Table			
Ref No	B Base	C Collector	E Emitter
Q1	3.7	4.8	3.1
Q4	0.1	4.8	-
Q5	0.7	4.8	4.0
Q15	-	4.3	-
Q16	4.3	0.2	-
Q17	0.4	3.5	-
Q18	3.5	0.7	-
Q80	2.6	2.2	-
Q81	2.4	-	3.0
Q304	-	4.8	-
Q305	-	4.8	-
Q330	4.5	-	5.1
Q331	6.3	8.8	5.7
Q332	3.1	8.8	2.5
Q1001	4.4	-	-

A (1/2) BOARD TRANSISTOR VOLTAGE TABLE

Transistor Voltage Table			
Ref No	B Base	C Collector	E Emitter
Q110	1.8	8.2	1.2
Q112	1.5	8.8	0.8
Q113	1.8	-	-
Q114	5.4	6.0	-
Q120	84.3	8.8	3.7
Q121	1.5	5.4	0.9
Q122	5.4	8.8	4.7
Q124	-	8.8	-
Q201	4.4	8.8	3.7
Q202	4.4	8.8	3.7

WAVEFORMS A BOARD

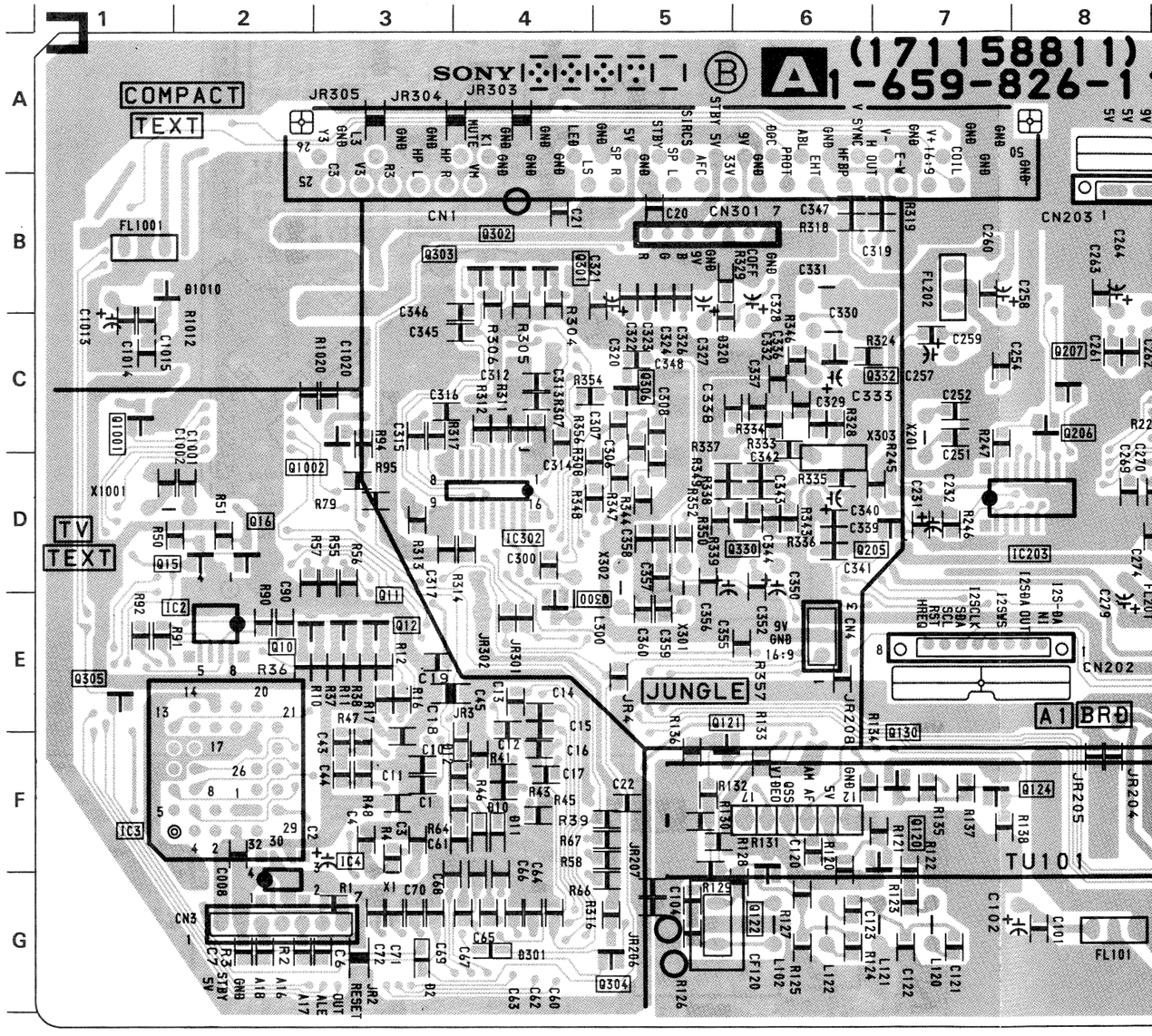
① 3.5 Vp-p (H)	② 3.0 Vp-p (H)	③ PAL.SECAM 3.0 Vp-p (H)	③ NTSC 2.3 Vp-p (H)	④ 5.1 Vp-p (H)
⑤ 1.0 Vp-p (H)	⑥ 1.4 Vp-p (H)	⑦ PAL.NTSC 0.6 Vp-p (H)	⑦ SECAM 0.5 Vp-p (H)	⑧ PAL 0.8 Vp-p (H)
⑧ SECAM 1.5 Vp-p (H)	⑧ NTSC 0.9 Vp-p (H)	⑨ PAL.SECAM 0.5 Vp-p (H)	⑨ NTSC 0.4 Vp-p (H)	⑩ 1.0 Vp-p (H)

A (2/2) BOARD IC VOLTAGE TABLE

IC Voltage Table								
Ref No	Pin No	Voltage (V)	Ref No	Pin No	Voltage (V)	Ref No	Pin No	Voltage (V)
IC1	2	3.6	IC301	5	3.6	IC301	61	5.0
	3-4	4.8		6	5.0		62	7.6
	5	0.5		7-8	5.4	IC302	1	4.8
	7	4.8		10	0.6		5	0.7
	9	4.8		12-14	5.4		9	4.8
	11	2.4		16	4.0		11-12	3.0
	13	4.8		17-19	5.4		14	1.3
	14-15	2.3		20	8.8		16	1.3
	16-17	4.8		22-23	2.2	IC303	5	8.0
	48	4.0		24	2.0		3.2	10
	51	4.8		25	2.4		11	5.6
	52-53	2.4		26	2.0		0	19
	54	0.7		27	4.0		20	3.7
	55	0.2		28	6.6		4	0.2
	56-57	4.8		29	8.8		5	0.7
	58	2.8		31-33	3.0	IC1001	4	0.2
	59	3.5		34	4.0		5	0.7
	60	2.4		35	4.6		6	1.7
	62	0.7		36	8.8		7	1.8
	63	4.4		37	3.1		10	0.4
	65	4.8		38	3.4		11-12	4.8
	66	2.1		39	5.3		16	4.8
	67	2.0		40	4.2		17	0
	69-71	2.3		41	2.3		21	4.8
	72	4.8		43	1.7		23	3.0
	73	1.5		44	8.8		25	4.8
	74	1.2		45	2.5		56	0
	75-77	4.8		46	3.9		61	1.3
	79	0.2		47	3.0		62-63	1.4
	80	4.8		48	4.4		64	0
IC2	5-8	4.8		49	6.3		66	4.6
IC3	1	4.8		50-51	0.1		67	4.7
	31-32	4.8		53	3.9		68	4.0
IC4	1	4.8		54	5.0			
	3	4.8		55-56	4.2			
IC301	1	1.5		58-59	8.8			
	3-4	5.6		60	5.3			

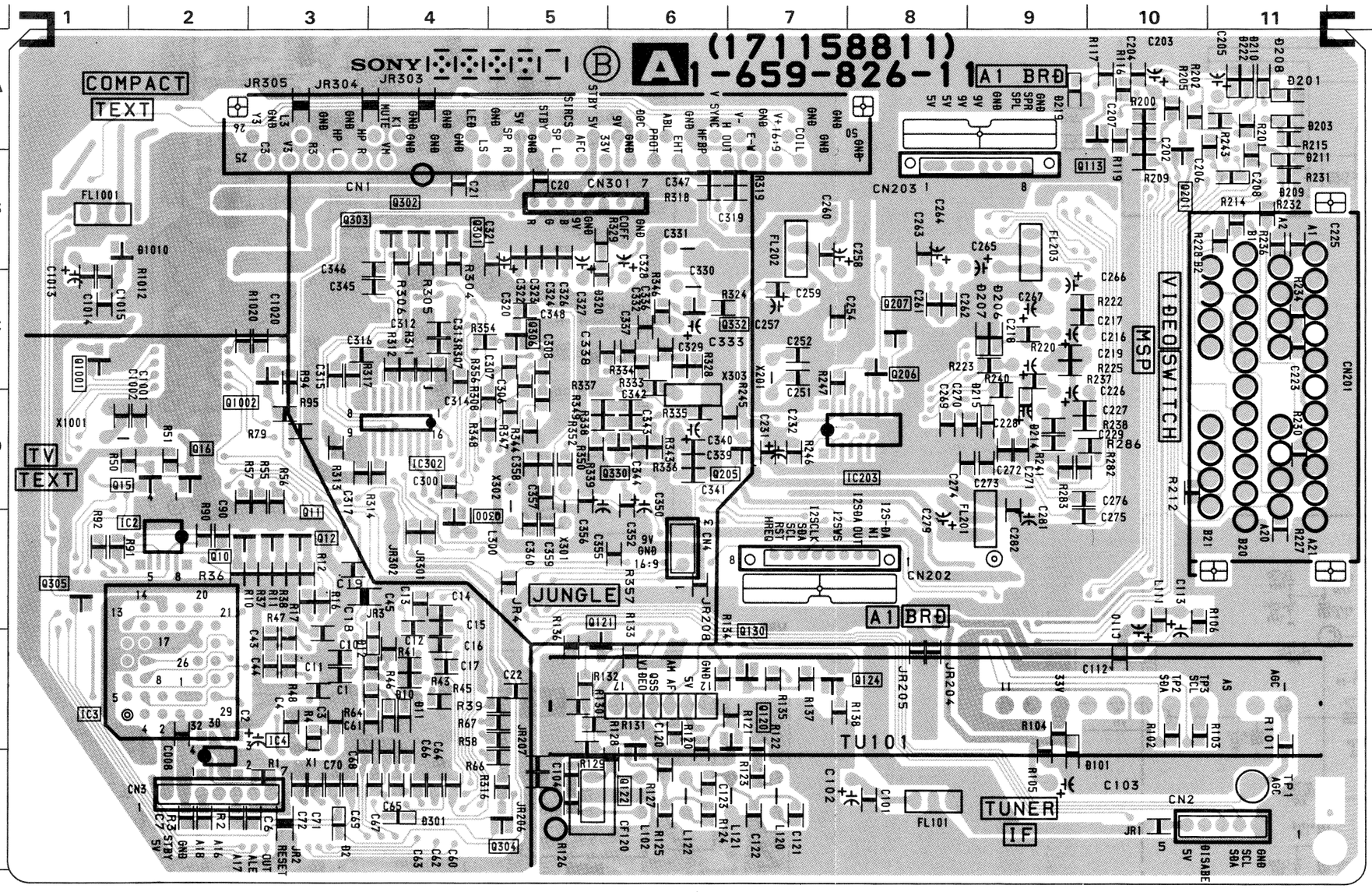
A [TUNER, AUDIO CONTROL VIDEO SW, DIGITAL SIGNAL PROCESSING / Y/C JUNGLE MICRO CONTROLLER]

A Board <Conductor Side>

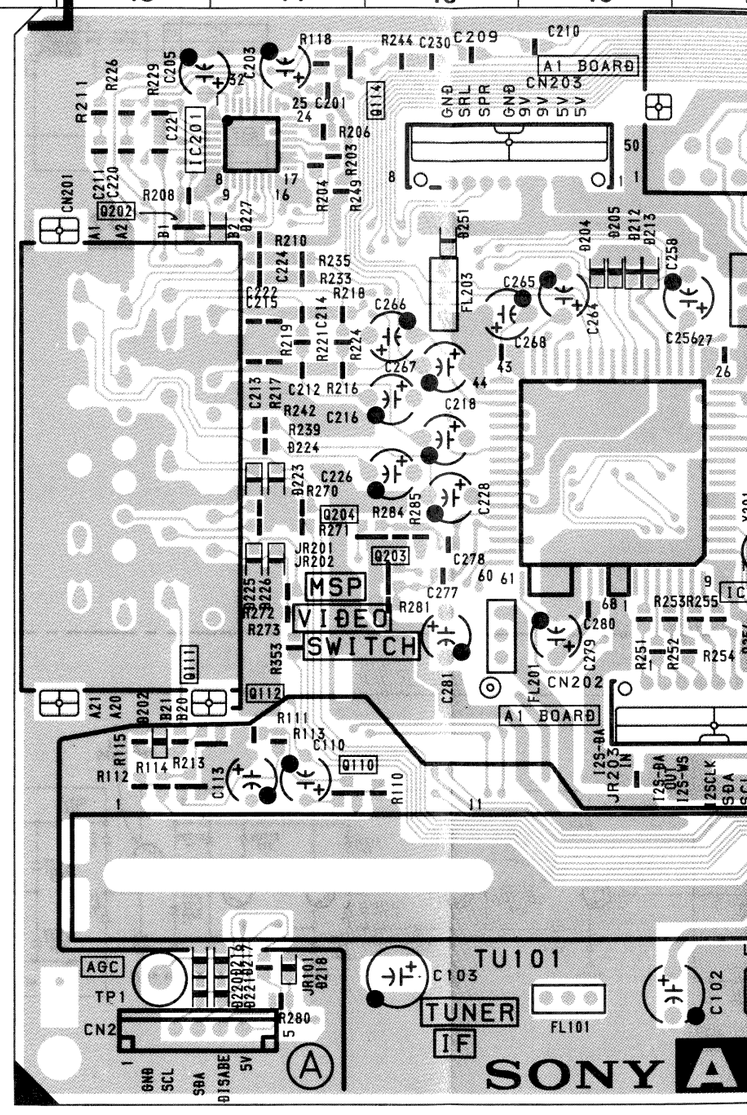


A [TUNER, AUDIO CONTROL VIDEO SW, DIGITAL SIGNAL PROCESSING
Y/C JUNGLE MICRO CONTROLLER]

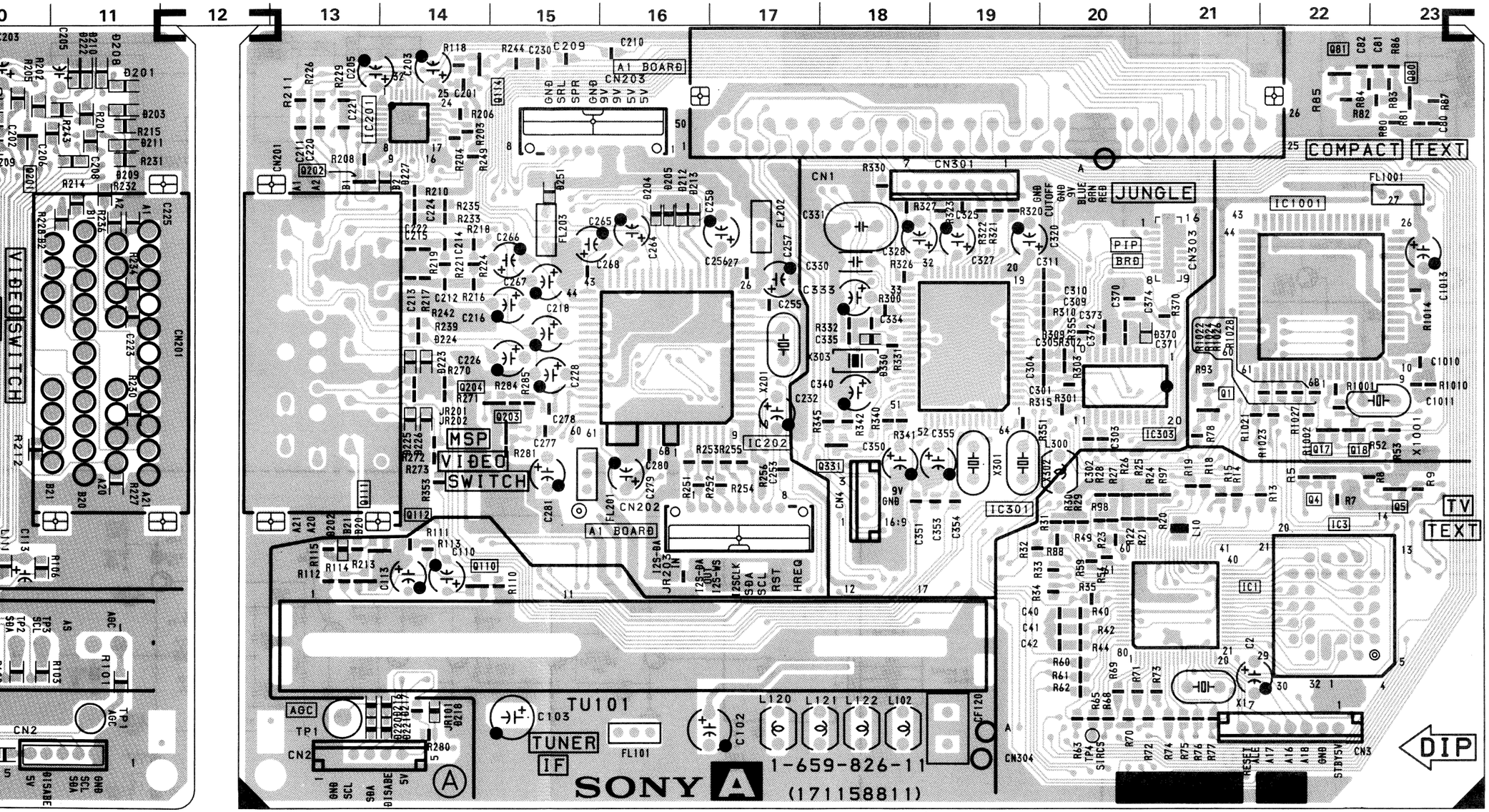
A Board <Conductor Side>



A Board <Component Side>

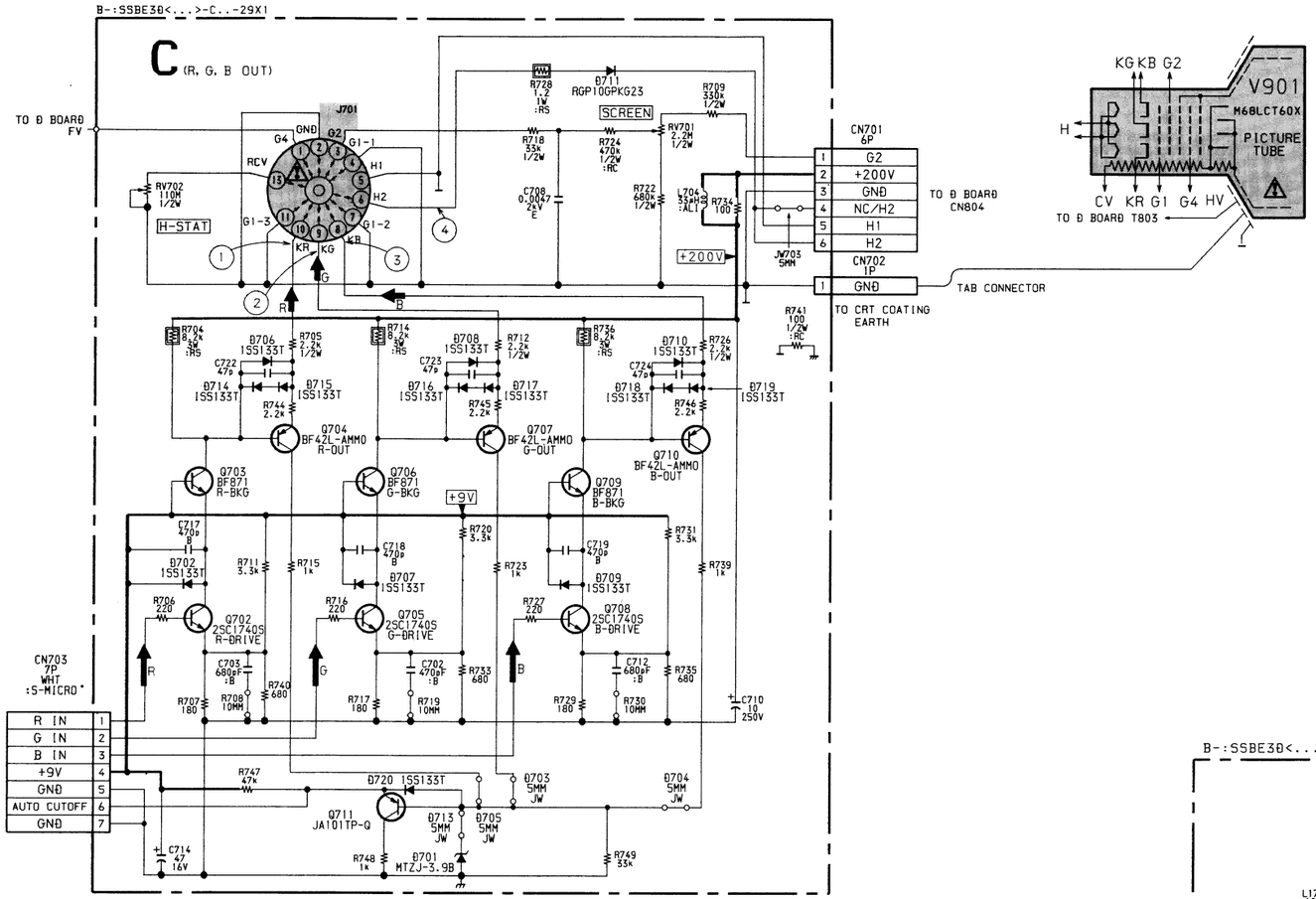


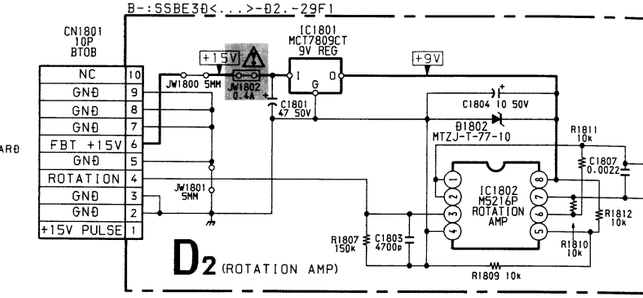
A Board <Component Side>



A BOARD

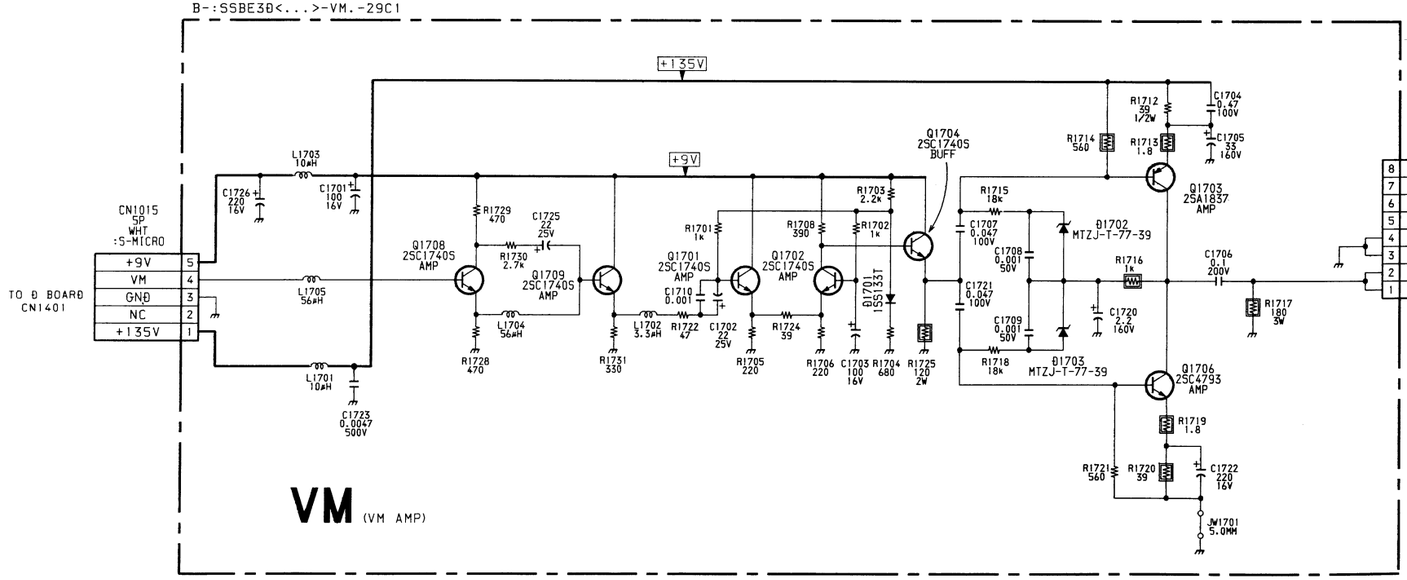
IC		Q305	E-1
IC1	F-21	Q306	C-5
IC2	E-2	Q330	D-6
IC3	F-2	Q331	D-18
IC4	G-2	Q332	C-6
IC201	A-14	Q1002	C-3
IC202	C-16	**DIODE**	
IC203	D-8	D2	G-3
IC301	C-19	D10	F-10
IC302	D-4	D11	F-10
IC303	D-21	D12	F-4
TRANSISTOR		D101	F-9
Q1	D-21	D201	A-11
Q4	E-22	D202	E-13
Q5	E-23	D203	A-11
Q10	E-2	D204	B-16
Q11	E-3	D205	B-16
Q15	D-2	D206	C-9
Q16	D-2	D207	C-9
Q17	D-22	D208	A-11
Q18	D-23	D209	B-11
Q80	A-23	D210	A-11
Q81	A-22	D211	B-11
Q110	F-14	D212	B-16
Q111	E-14	D213	B-16
Q112	E-14	D214	D-9
Q113	A-10	D215	D-9
Q114	A-14	D216	G-14
Q120	F-7	D217	G-14
Q121	F-5	D218	G-14
Q122	F-6	D220	G-14
Q124	F-7	D221	D-14
Q130	F-7	D222	D-14
Q201	B-10	D223	D-14
Q202	B-13	D224	D-14
Q203	D-15	D225	D-14
Q204	D-15	D226	D-14
Q205	D-7	D227	B14
Q206	C-8	D251	B-15
Q207	C-8	D320	C-5
Q300	E-4	D370	C-21
Q304	G-5		

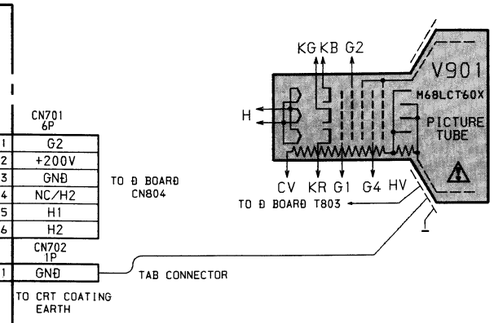


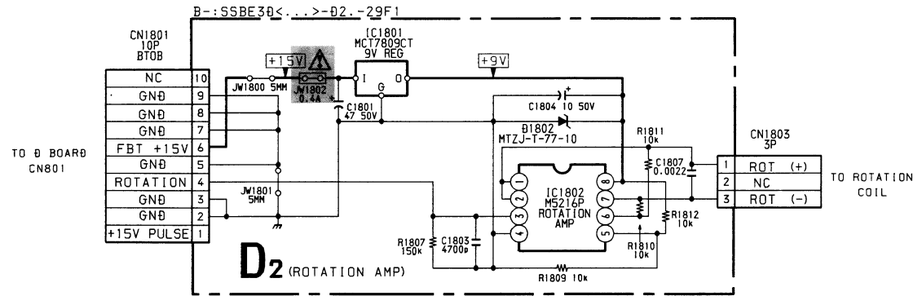


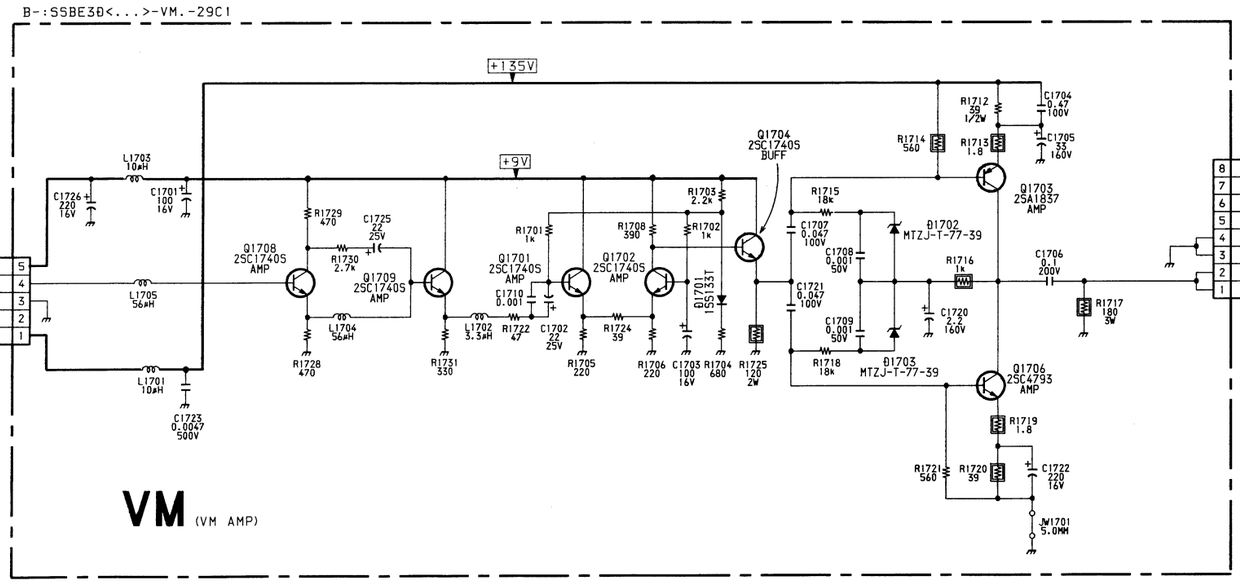
WAVEFORMS C BOARD

①	②	③	④
110 Vp-p (H)	108 Vp-p (H)	90 Vp-p (2H)	21 Vp-p (2H)



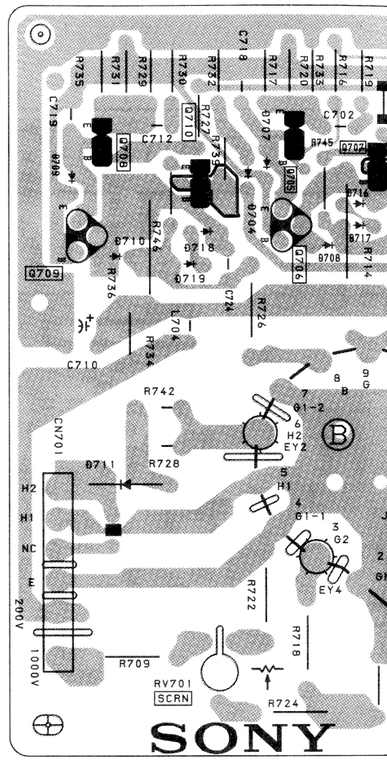




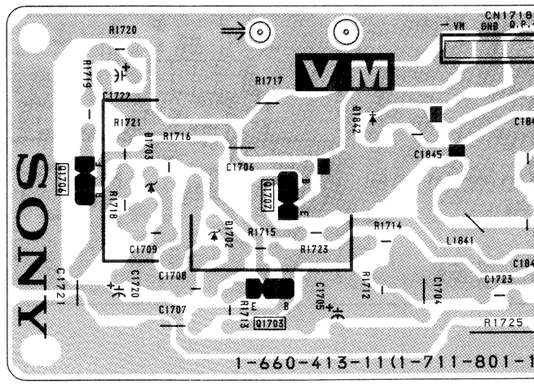


C [R, G, B OUT] VM [V

C Board



VM Board

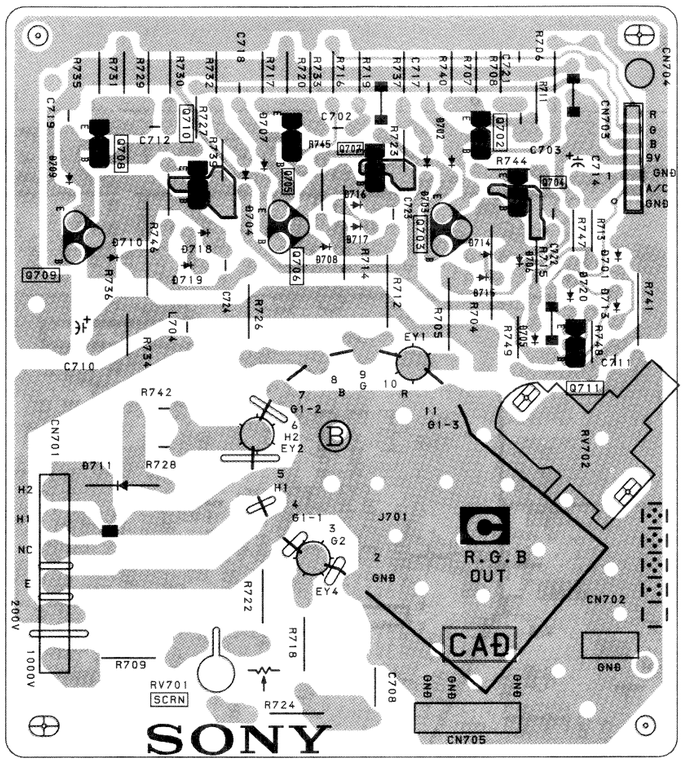


C [R, G, B OUT]

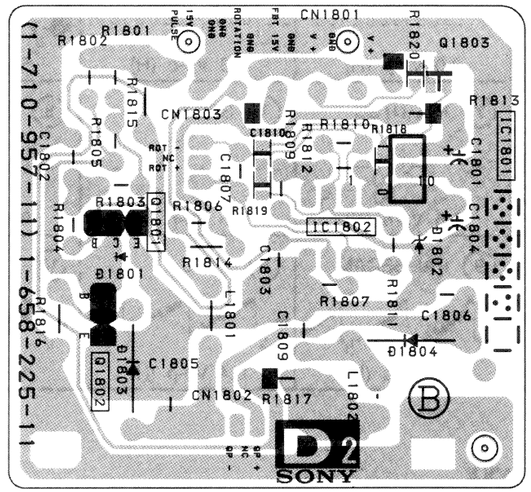
VM [VM AMP]

D2 [ROTATION AMP]

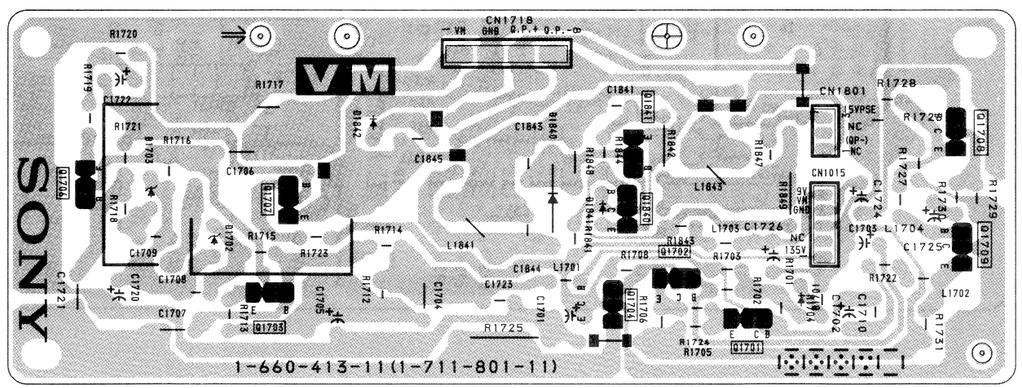
C Board



D2 Board



VM Board



C BOARD
TRANSISTOR VOLTAGE TABLE

Transistor Voltage Table			
Ref No	B Base	C Collector	E Emitter
Q702	2.0	11.4	1.4
Q703	12.0	168.3	11.4
Q704	168.3	6.0	163.5
Q705	1.7	11.4	1.2
Q706	12.0	178.8	11.4
Q707	178.2	6.2	173.8
Q708	2.0	11.4	1.4
Q709	12.0	168.3	11.4
Q710	168.0	6.4	160.0

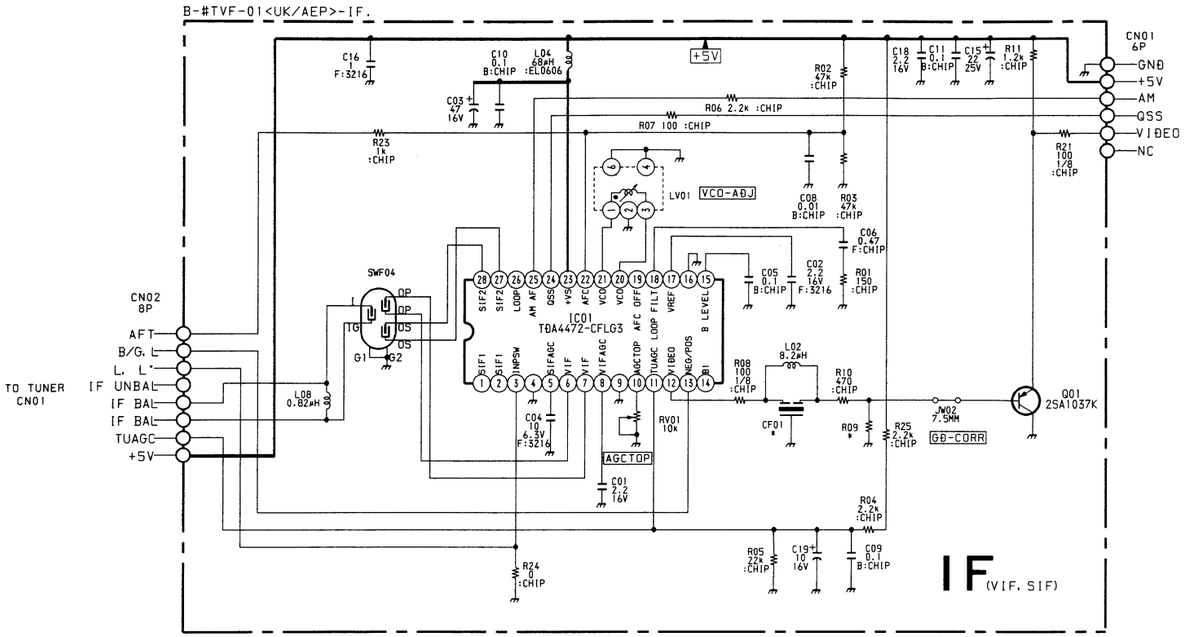
VM BOARD
TRANSISTOR VOLTAGE TABLE

Transistor Voltage Table			
Ref No	B Base	C Collector	E Emitter
Q1701	2.5	8.8	1.8
Q1702	2.5	5.5	1.8
Q1703	134.3	71.8	134.8
Q1704	5.5	8.8	4.8
Q1706	1.0	71.8	0.4
Q1707	0.7	-	-
Q1708	2.9	6.6	2.2
Q1709	2.2	8.8	1.5
Q1840	0.6	-	-

D2 BOARD IC VOLTAGE TABLE

IC Voltage Table		
Ref No	Pin No	Voltage (V)
IC1802	1-2	2.8
	3	3.0
	5-6	4.4
	7	6.2
	8	9.0

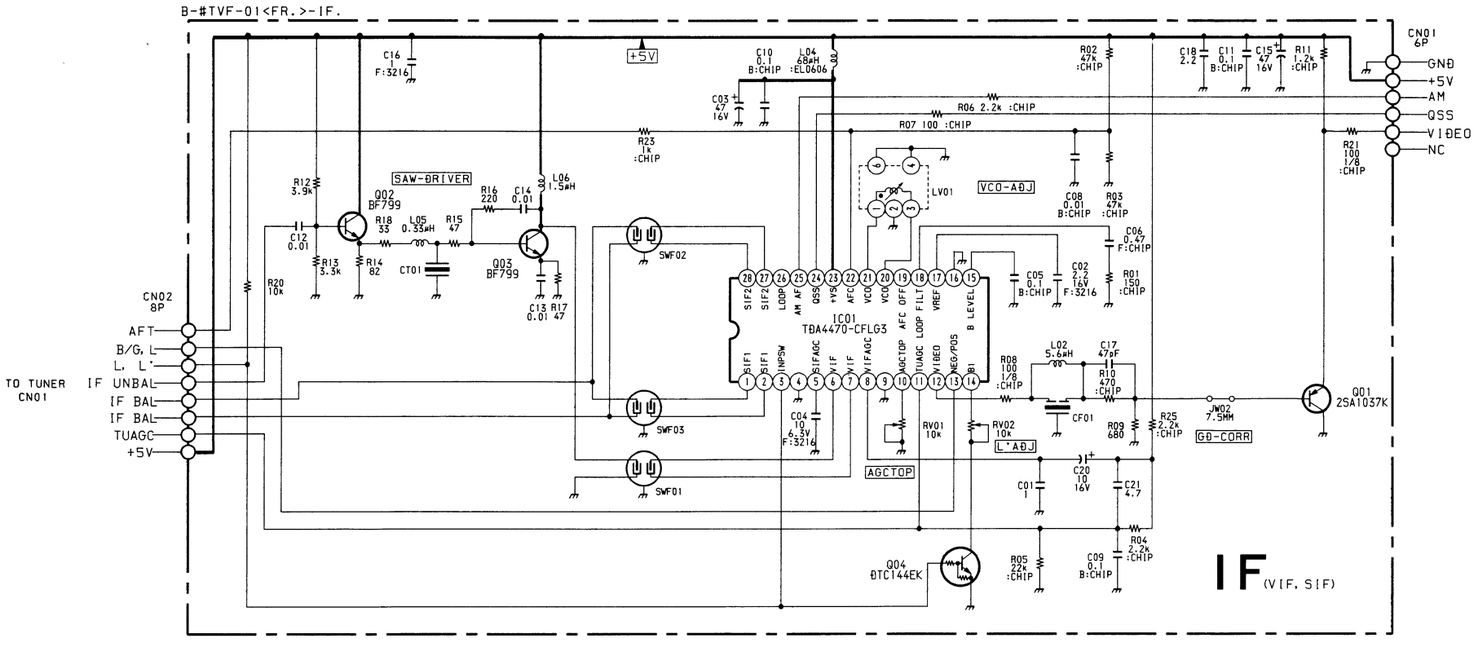
TUVIF (AEP) (KV-29X1A, 29X1D, 29X1E, 29X1K, 29X1L and 29X1R ONLY)
TUVIF (UK) (KV-29X1U ONLY)



IF Board

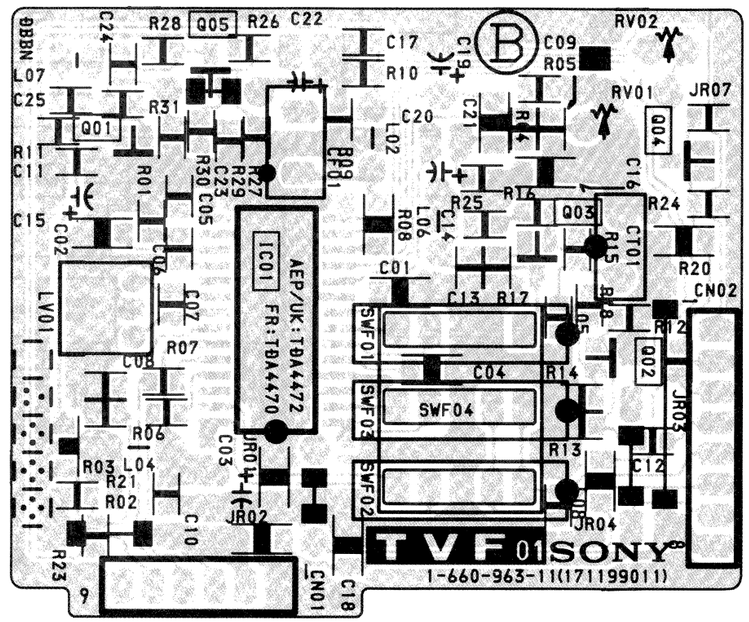
Ref. No. \ Model	29X1A	29X1D	29X1E	29X1K	29X1L	29X1R	29X1U
CF01	5.5MHz	5.5MHz	5.5MHz	5.5MHz	5.5MHz	5.5MHz	6.0MHz
R09	680MF	680MF	680MF	680MF	680MF	680MF	1K

TUVIF (FR) (KV-29X1B ONLY)

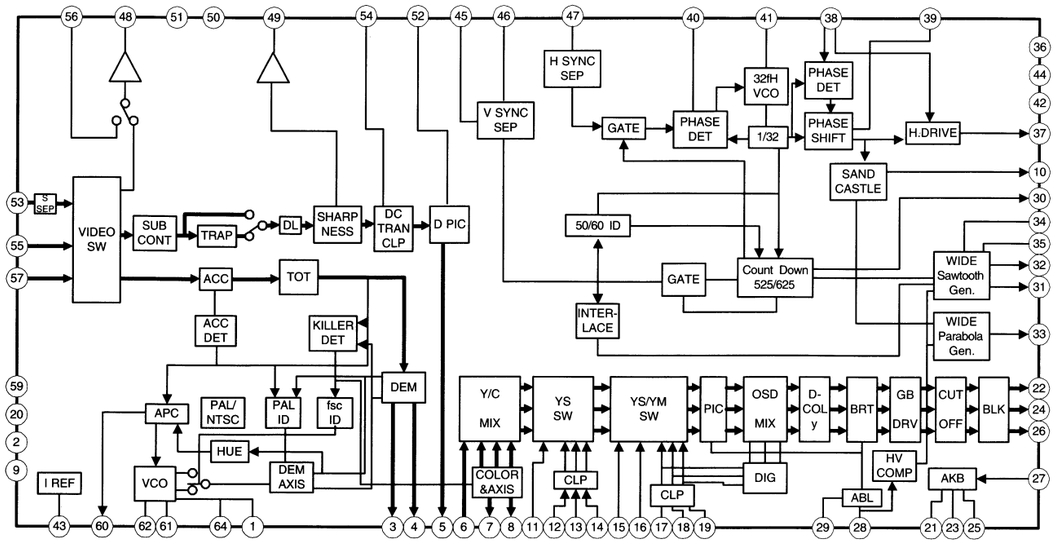


IF [VIF, SIF]

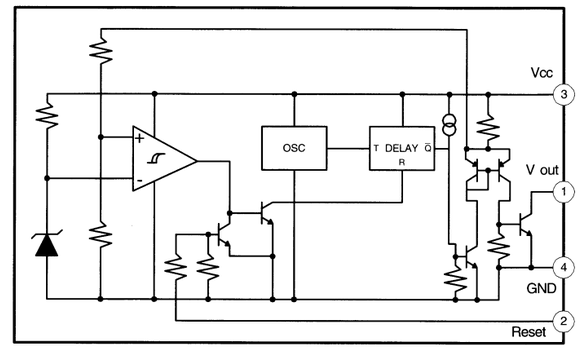
IF Board



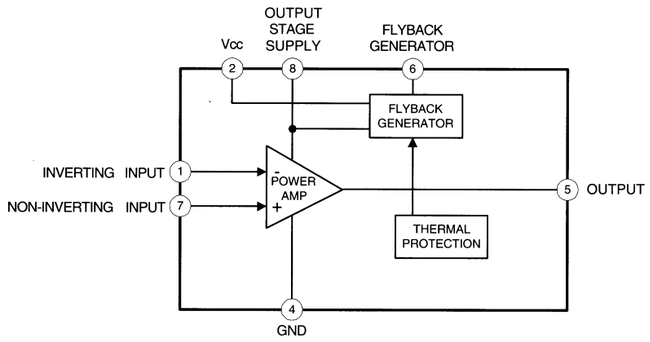
A BOARD IC301 CXA2000Q-TL



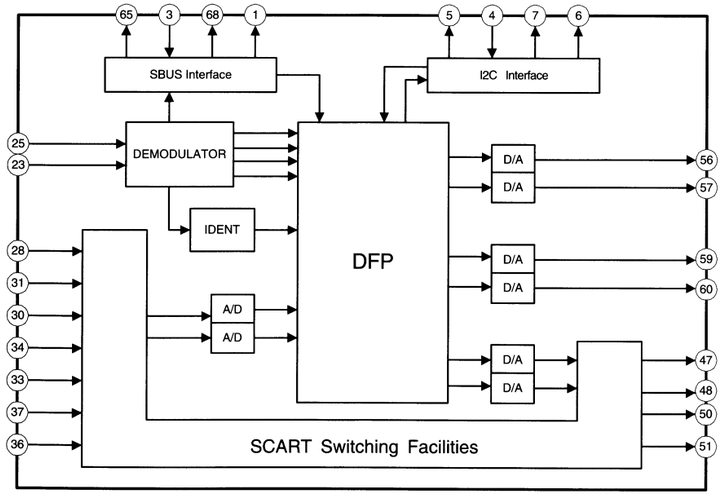
A BOARD IC4 PST593C



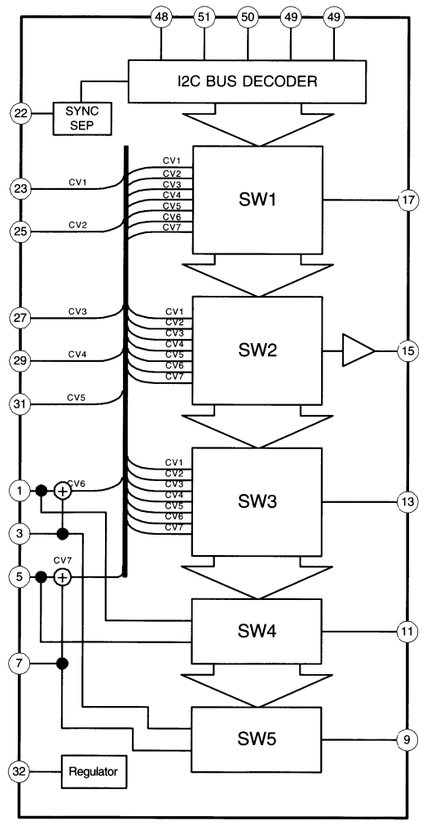
D BOARD IC500 STV9379



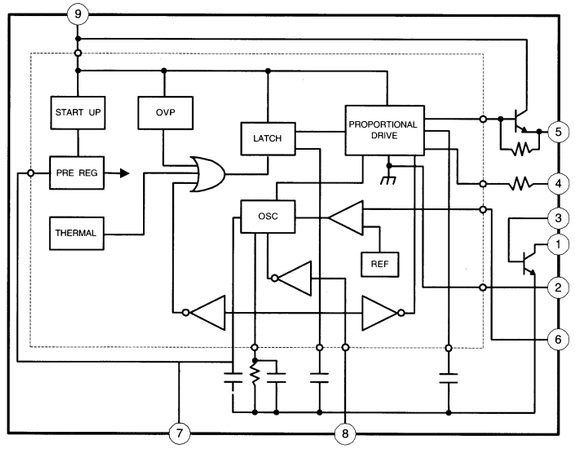
A BOARD IC202 MSP3410/MSP3400



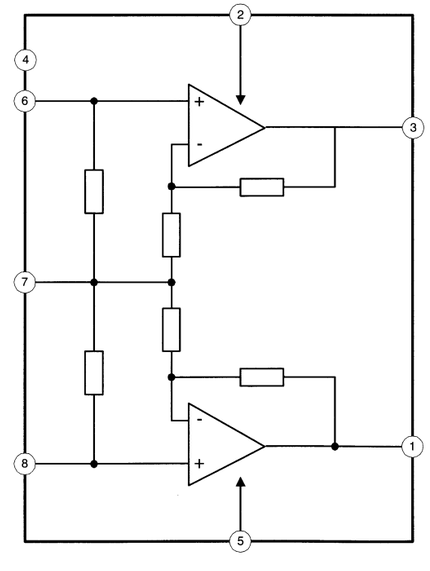
A BOARD IC201 CXA2040Q



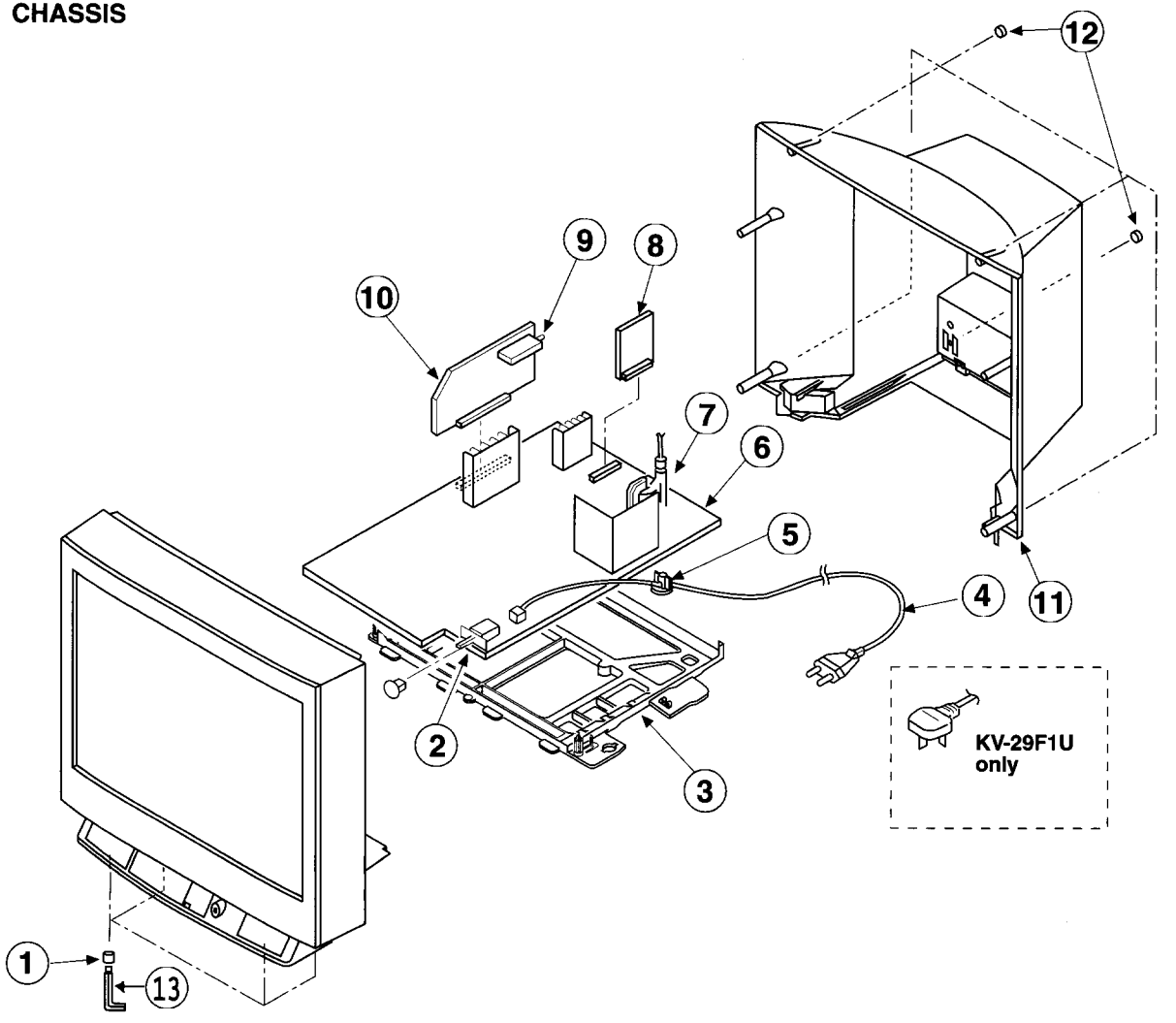
D BOARD IC600 STR-S6708



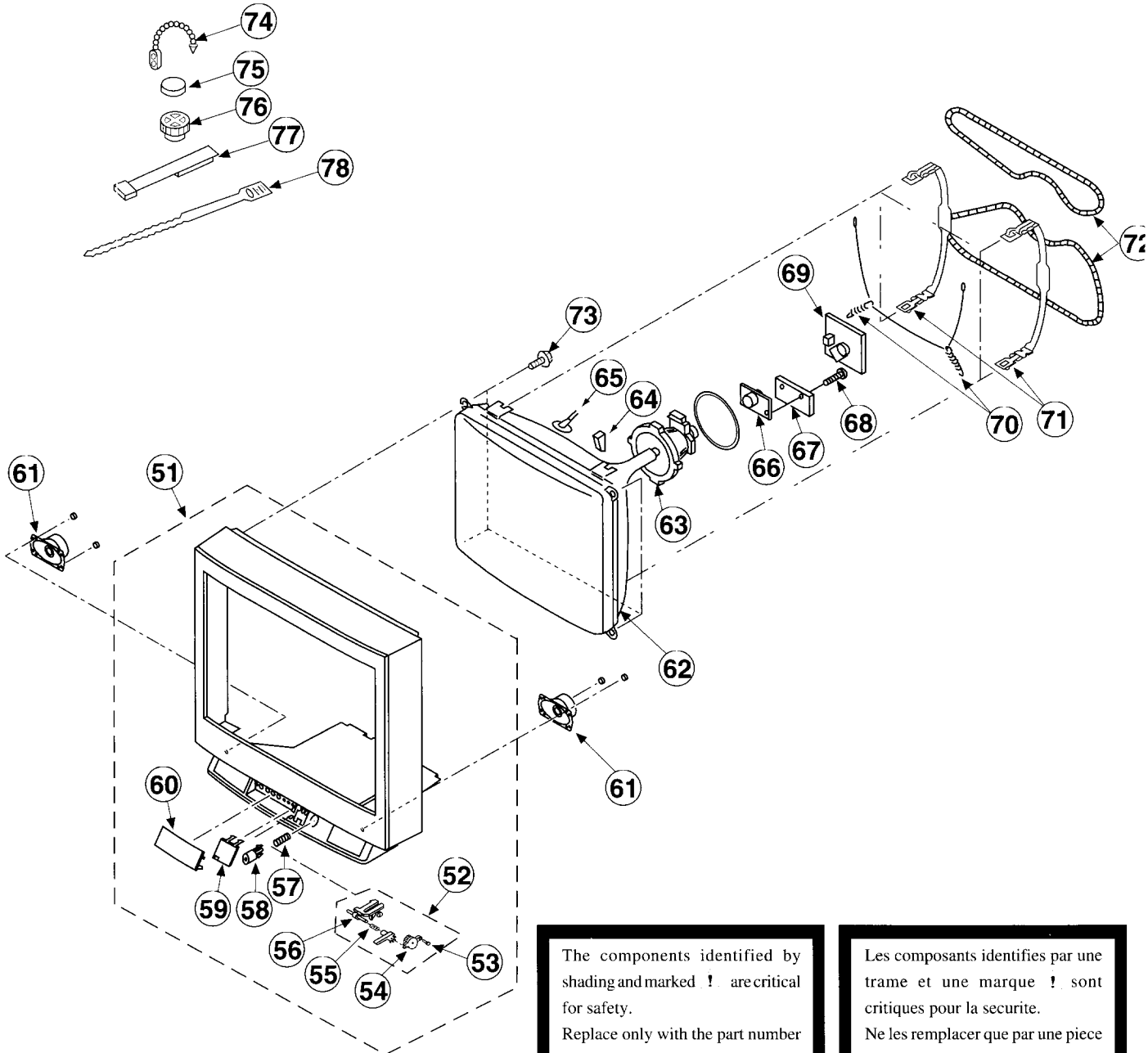
D BOARD IC1200 TDA7264



6-1. CHASSIS



6-2. PICTURE TUBE



The components identified by shading and marked ! are critical for safety.
Replace only with the part number specified.

Les composants identifies par une trame et une marque ! sont critiques pour la securite.
Ne les remplacer que par une piece portant le numero specifie.